



United States
Department of
Agriculture

Forest Service

Huron-Manistee National Forests

2008 Monitoring & Evaluation Report

August 2009



Huron National Forest Centennial, 1909-2009



DA
Appointment-Marquette
Michigan.

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
MICHIGAN NATIONAL FOREST

AU SABLE, MICHIGAN
May 24, 1911.

Mr. Paul Hankins,
Cass Lake, Minnesota.

Dear Sir:-

Your name appears on the list of individuals eligible to the position of Assistant Forest Ranger.

Owing to the small size of and the character of work on the Marquette and Michigan Forests it will be impossible to make any more appointments to that position on them this year but the services of a few Forest Guards at the salary of \$900 per annum will be needed after the first of July. The Guards should provide themselves with a saddle horse apiece.

There are no Ranger station houses on either Forest but there are a few natives living within and adjacent to them with whom one could board. Most of the work on the Forests of this State will be a matter of protection of young growth and planting on the "Plains" for many years. There is very little timber here of merchantable size on these Forests. I mention these facts to give you a slight idea of the conditions here.

I am writing you to learn if you would accept a position as Guard on one of these Forests under these conditions for the summer and shall greatly appreciate an early reply as to whether you would or would not.

Very truly yours,

William B. Piper
Acting Forest Supervisor.

This letter from Bill Piper, Acting Forest Supervisor to Paul Hankins was found in 1958 in the attic of a ranger office/dwelling that was being torn down. The building was located on the Bena Ranger District, Chippewa NF, Cass Lake, Minnesota. Though Hankins worked for the Forest Service, he ostensibly did not accept this particular position.

Approval

I reviewed the FY 2008 Monitoring & Evaluation Report for the Huron-Manistee National Forests. The 2006 Forest Plan was implemented on June 26, 2006. This Monitoring & Evaluation Report evaluates these results. This report meets the intent of both the Forest Plan and the regulations contained in 36 CFR 219 National Forest Management Act.

This report is approved:

/s/ Barry Paulson

Barry Paulson
Forest Supervisor

September 3, 2009

Date

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Introduction and Forest Plan Overview

The Huron-Manistee National Forests are located between the shores of Lake Michigan and Lake Huron in the northern half of the Lower Peninsula of Michigan. The approximately one-million-acre Huron-Manistee National Forests are located in a transition zone between forested lands to the north and agricultural lands to the south. The Huron-Manistee National Forests are located within fourteen Michigan Counties, including Alcona, Crawford, Iosco, Ogemaw, Oscoda, Lake, Manistee, Mason, Mecosta, Montcalm, Muskegon, Newaygo, Oceana, and Wexford. The Forests have four ranger stations, including Cadillac-Manistee, Baldwin-White Cloud, Huron Shores, and Mio.

Forest Plan Overview

The Huron-Manistee National Forests released the Land and Resource Management Plan on March 20, 2006 with the signing of the Record of Decision. This was a revision of the Forest Plan completed in 1986. The Forest Plan provides guidance for all resource management activities occurring on the Huron-Manistee National Forests. The Forest Plan identifies management direction for the Huron-Manistee National Forests in the form of goals, objectives, desired future conditions, and standards and guidelines, all of which are based on underlying assumptions (policy, theory, data, and technology). To determine the usefulness of a Forest Plan, the National Forest Management Act (NFMA) regulations (36 CFR 219) have required regularly scheduled monitoring and evaluation.

Purpose and Scope of the Monitoring & Evaluation Report

The information gained from the Monitoring & Evaluation Report is an indicator of how well the goals, objectives, and desired future conditions of the 2006 Forest Plan have been met. At this point in implementation of the revised Forest Plan, trends, patterns, and results are not clearly defined. Explicit patterns and conclusions that would lead to changes in the Forest Plan are not expected. Rather, this report focuses more on what we monitored and how it was monitored.

The Monitoring & Evaluation Report serves several purposes, including:

- Documenting monitoring and evaluation accomplishments,
- Providing an accountability tool for monitoring and evaluation expenditures,
- Providing an assessment of the current state of the Huron-Manistee National Forests,

- Providing adaptive management feedback to Forest Supervisor of any needed changes to the 2006 Forest Plan or adjustments to management actions,
- Describing to the public how their public lands are being managed.

This document is the third Monitoring and Evaluation Report compiled under the 2006 Huron-Manistee National Forests Forest Plan. The Monitoring and Evaluation Report (M & E) provides an opportunity to track progress towards the implementation of revised Forest Plan decisions and the effectiveness of specific management activities. The focus of the evaluation is in providing short and long-term guidance to ongoing management. The information gained from the M & E report is used to determine how well the desired conditions, goals, objectives, and outcomes of the Forest Plan have been met.

Monitoring and evaluation is described in Chapter IV of the 2006 Forest Plan and describes the methods the Forests will use in measuring predicted. The Forest Plan's Monitoring Plan identifies the information needed to make this determination, and guides our monitoring with broad questions to be answered.

A **Monitoring Guide** has been developed from the overall guidance in Chapter IV. It brings specificity to the broader questions and links them to monitoring items by asking questions that are more specific. It includes a database that comprehensively describes the methodology, costs, timing, data storage location, and priority of each monitoring item. Not all of the items in the database are monitored annually. Some items are scheduled to be monitored less frequently and some are dependent on available funding. Each year, the Forests create a **Monitoring Schedule** that identifies and prioritizes the items to be monitored that year.

In addition to monitoring the items listed in the annual **Monitoring Schedule**, individual project monitoring occurs on a daily basis. **Project Monitoring** helps insure that implementation is occurring as described in project plans and decisions. Project monitoring may not result in changes to the Forest Plan, but it can affirm our approaches or encourage timely adaptation in our management activities to protect resources.

The following sections summarize the results from the 2008 monitoring items. Each of the resource areas includes the monitoring question(s) with findings and evaluations and conclusions.

The aim of monitoring is adaptive management, which is responding to current conditions or making appropriate changes based on new information or technology. As a result, the Forest Plan may be amended or revised to adapt to any new information or changed conditions. The annual Monitoring and Evaluation Report should include

recommendations for remedial action, if necessary, to make management activities and their effects consistent with the Forest Plan. Specific recommendations for corrective action will depend on the risk to the resource and the type of disparity discovered.

Types of action that could be recommended include:

- No action—if monitoring and evaluation indicate that the standards and guidelines are being followed and the results are meeting Forest plan objectives.
- Additional monitoring—if initial results are inconclusive or indicate a pattern of minor discrepancies between the standards and guidelines and their implementation, or between expected and actual results.
- Referral to the appropriate line officer for action to ensure proper application of the standards and guidelines, if compliance is inconsistent.
- Changing the projected output schedule, if it turns out to be unachievable given funding and other constraints.
- Revising the budget, if the anticipated costs of implementation of the Forest Plan turn out to be incorrect.
- Amending the Forest Plan to change, for example, the allocation of particular areas from one Land Use Designation to another, or changing one or more of the standards and guidelines.
- Revising the Forest Plan if major changes are warranted.

Administrative Corrections to the Forest Plan

Since the Huron-Manistee National Forest Land and Resource Management Plan (Forest Plan) was revised, Congress has enacted the 2000 Planning Rule which allows non-substantive corrections or adjustments to the revised Forest Plan using a process called “administrative corrections”.

Administrative corrections (36 CFR 219.7(b)) may be made at any time and are not plan amendments or revisions. Administrative corrections include the following:

- (1) Corrections and updates of data and maps,
- (2) Corrections of typographical errors or other non-substantive changes;
- (3) Changes in the monitoring program and monitoring information
- (4) Changes in timber management projections; and
- (5) Other changes in the Plan Document or Set of Documents, except for substantive changes in the plan components.

There were no Administrative Corrections issued in 2008. However, in 2006 the Huron-Manistee National Forests issued one Administrative Correction to the 2006 Forest Plan and one Errata Correction to the 2006 Final Environmental Impact Statement.

The 2006 Forest Plan Administrative Correction included a clarification to a guideline concerning use of motorized vehicles on trails. This was an agreement reached through an informal resolution of an appeal to the Regional Forester’s decision regarding the 2006 Forest Plan (appellant 06-13-00-0112). The informal resolution clarifies a guideline, which previously excluded use of trails by vehicles greater than 50 inches. Clarification to the guideline makes the revised forest plan consistent with the travel management rule (36 CFR 212.51) and is a non-substantive change to the 2006 Forest Plan.

The 2006 Final Environmental Impact Statement Errata Correction concerned specific recreational use data, as presented, was erroneously referenced as National Visitor Use Monitoring data, in its original form, as shown in Table III-32, page III-287, entitled “National Visitor Use Monitoring Summary” (NVUM). However, the numbers in Table III-32 were upward adjusted numbers, reflecting the professional judgment of the interdisciplinary team, and had been increased by a factor of three or more and converted to a different set of units from the original NVUM data. Thus, the results of these adjustments were unfairly described as reflecting the NVUM survey. Additionally, several recreational uses referenced NVUM statistics without reference to adjustment by the interdisciplinary team. Wording, in all instances, was adjusted.

The administrative corrections can be found at the Huron-Manistee National Forests web site at:

<http://www.fs.fed.us/r9/hmnf/pages/PlanningandProjects/ForestPlan.htm#admin>

Readers may request hardcopies of the current administrative corrections by contacting the Forests at the address or phone number shown at the top of this letter.

Additional administrative corrections are likely in the future. These will be available on the website above and we encourage use of this resource for accessing the most up to date information on administrative corrections. Future administrative corrections will also be listed in the Huron-Manistee National Forests' Annual Monitoring & Evaluation Report. However, the Forests will not be mailing individual notices as further Administrative Corrections are issued.

The administrative corrections process will not change how we conduct environmental analyses for site-specific projects. We will continue to provide opportunities for public involvement as we plan various specific projects implementing the Forest Plan, or if we propose any substantive changes to the Forest Plan.

Legally Required Monitoring

Minimum monitoring and evaluation requirements have been established through the NFMA at 36 CFR 219 (1982). Some requirements provide guidance for the development of a monitoring program, while others include specific compliance requirements. The minimum legally required monitoring tasks are identified as Category 1 elements, or required monitoring, in Chapter IV, Table IV-3 of the 2006 Forest Plan.

Table IV-3, Category 1 elements are shown below; some are covered in Section 1 of this document.

2006 Forest Plan, Chapter 4, Table IV-3. Monitoring Matrix. Required Monitoring Items (Category 1)

Resource Area	Monitoring Question(s)	Driver: Applicable Code of Federal Regulations (CFR)	Measurement Frequency	Evaluation/Reporting Frequency	Precision and Reliability Class
All	Is the Forest Plan still relevant?	36 CFR 219.10(g). The Forest Supervisor shall review the conditions on the land covered by the plan at least every 5 years to determine whether conditions or demands of the public have changed significantly.	5 years	5 years	A and B
All	How close are projected outputs and services to actual?	36 CFR 219.12(k) [1]. A quantitative estimate of performance comparing outputs and services with those projected by the Forest Plan.	Annual	Annual	A
All	How close are projected costs with actual costs?	36 CFR 219.12(k) [3]. Documentation of costs associated with carrying out the planned management prescriptions as compared with costs estimated in the Forest Plan.	Annual	Annual	A
Insects and Diseases	Are insects and disease organisms increasing to potentially damaging levels following management activities?	36 CFR 219.12(k) [5] [iv]. Destructive insects and disease organisms do not increase to potentially damaging levels following management activities.	5-10 years	5-10 years	B

2006 Forest Plan, Chapter 4, Table IV-3. Monitoring Matrix. Required Monitoring Items (Category 1)

Resource Area	Monitoring Question(s)	Driver: Applicable Code of Federal Regulations (CFR)	Measurement Frequency	Evaluation/Reporting Frequency	Precision and Reliability Class
Social and Economic Stability	What are the effects of Forest management being planned on land, resources, and communities adjacent to or near the National Forest? What are the effects on National Forest management from activities on nearby lands managed by other Federal or other governmental agencies or under the jurisdiction of local governments?	36 CFR 219.7(f). A program of monitoring and evaluation shall be conducted that includes consideration of the effects of National Forest Management on land, resources, and communities adjacent to or near the National Forest being planned and the effects upon National Forest management from activities on nearby lands managed by other Federal or other government agencies or under the jurisdiction of local governments. 36 CFR 219.12(k) [1]. A quantitative estimate of performance comparing outputs and services with those projected by the Forest Plan.	Annual	Annual	A and B
Soils	Are the effects of Forest management, including prescriptions, resulting in significant changes to productivity of the land?	36 CFR 219.12 (k) [2]. Documentation of the measured prescriptions and effects, including significant changes in productivity of the land.	1-5 years	1-5 years	A and B

2006 Forest Plan, Chapter 4, Table IV-3. Monitoring Matrix. Required Monitoring Items (Category 1)

Resource Area	Monitoring Question(s)	Driver: Applicable Code of Federal Regulations (CFR)	Measurement Frequency	Evaluation/Reporting Frequency	Precision and Reliability Class
Timber	Are harvested lands adequately restocked after five years?	36 CFR 219.12(k) [5] [i]. Lands are adequately restocked as specified in the Forest Plan.	Annual	Annual	A
Timber	To what extent is timber management occurring on lands suitable for such production?	36 CFR 219.12(k) [5] [ii]. Lands identified as not suited for timber production are examined at least every 10 years to determine if they have become suited; and that, if determined suited, such lands are returned to timber production.	10 years	10 years	A
Timber	How much even-aged management (especially clearcutting) should be used, and in what forest types should it be used?	36 CFR 219.12(k) [5] [iii]. Maximum size limits for harvest areas are evaluated to determine whether such size limits should be continued.	10 years	10 years	A
Timber	Is the timber product mix and timber output at, or below, levels defined in the Timber Resource Sale Schedule?	36 CFR 219.16. Timber Resource Sale Schedule.	Annual	Annual	A

2006 Forest Plan, Chapter 4, Table IV-3. Monitoring Matrix. Required Monitoring Items (Category 1)

Resource Area	Monitoring Question(s)	Driver: Applicable Code of Federal Regulations (CFR)	Measurement Frequency	Evaluation/Reporting Frequency	Precision and Reliability Class
Wildlife: Management Indicator Species	What are the population trends of management indicator species? What are the relationships of the population trends to habitat changes?	36 CFR 219.19(a) (6). Population trends of the management indicator species will be monitored and relationships to habitat changes determined. This monitoring will be done in cooperation with state fish and wildlife agencies, to the extent practical.	Annual	1-5 years	A and B
All	What are the identified research needs?	36 CFR 219.28. Research needs for management of the National Forest System shall be identified during planning and periodically reviewed during evaluation of implemented plans.	Annual	5 years	A and B

Monitoring Attainment of Goals, Implementation of Standards & Guidelines, and Effects of Prescriptions and Management Practices

In addition to minimum or required monitoring items, discussed above, there are monitoring items that are intended to address issues brought forth through public involvement and interdisciplinary team review, including:

- Category 2 – Attainment of goals and objectives, and desired future condition,
- Category 3 – Implementation of standards and guidelines,
- Category 4 – Effects of Prescriptions and management practices.

These monitoring tasks are also identified in Table IV-3 of the Forest Plan. Table IV-3, Category 2, 3, and 4 elements are shown below; some are covered in Section 2 of this document.

2006 Forest Plan, Chapter 4, Table IV-3. Monitoring Matrix. Desired Condition and Objective Monitoring Items (Categories 2, 3 and 4)					
Resource Area	Monitoring Question(s)	Driver: Applicable Code of Federal Regulations (CFR), Forest Plan Desired Condition or Forest Plan Objective	Measurement Frequency	Evaluation/Reporting Frequency	Precision and Reliability Class
All	What Standards, Guidelines, or Objectives are not being met?	36 CFR 219.12 (k). At intervals established in the plan, implementation shall be evaluated on a sample basis to determine how well objectives have been met and how closely management standards and guidelines have been applied. Based upon this evaluation, the inter-disciplinary team shall recommend to the Forest Supervisor such changes in management direction, revision, or amendments to the Forest Plan as are deemed necessary.	Annual	Annual	A and B
Wildlife and Vegetation Management	What are the amounts, distribution, and types of available habitats?	Wildlife and Rare Plants: Provide for the sustainability of terrestrial and aquatic ecosystems at multiple scales.	Annual	1-5 years	A and B

2006 Forest Plan, Chapter 4, Table IV-3. Monitoring Matrix. Desired Condition and Objective Monitoring Items (Categories 2, 3 and 4)					
Resource Area	Monitoring Question(s)	Driver: Applicable Code of Federal Regulations (CFR), Forest Plan Desired Condition or Forest Plan Objective	Measurement Frequency	Evaluation/Reporting Frequency	Precision and Reliability Class
Wildlife and Vegetation Management	Are minimum viable populations of appropriate native and desirable non-native species being maintained within the planning area?	Wildlife and Rare Plants: Maintain minimum viable populations of appropriate native and desirable non-native species within the planning area.	Annual	1-5 years	A and B
Timber, Wildlife and Fire	What mix of harvest products by timber type will be produced? What is the mix as to non-chargeable versus chargeable?	Timber Management: Sell products as the result of ecosystem restoration, fire hazard reduction, and timber management.	Annual	1-5 years	A and B
Wildlife and Watershed	How many acres of the Forest have been inventoried and classified using an approved Aquatic Ecological Classification System?	Riparian and Aquatic Resources: Base the management of the aquatic resources upon an Aquatic Ecological Classification System.	Annual	1-5 years	A and B

2006 Forest Plan, Chapter 4, Table IV-3. Monitoring Matrix. Desired Condition and Objective Monitoring Items (Categories 2, 3 and 4)					
Resource Area	Monitoring Question(s)	Driver: Applicable Code of Federal Regulations (CFR), Forest Plan Desired Condition or Forest Plan Objective	Measurement Frequency	Evaluation/Reporting Frequency	Precision and Reliability Class
Wildlife and Vegetation Management	How many acres of early successional habitat in riparian areas occur on each Forest? Does this level of habitat provide adequate species viability?	Riparian and Aquatic Resources: Employ active management for early successional habitat if natural disturbance processes are not providing adequate habitat for species viability concerns.	Annual	1-5 years	A and B
Recreation	How many areas and how many acres of semiprimitive nonmotorized and motorized areas are being provided?	Recreation, Semiprimitive Areas and Access: Provide for semiprimitive nonmotorized and motorized recreational experience.	Annual	1-5 years	A
Fire	What is the distribution of National Forest System acres by fire hazard rating? How many acres in fire-dependent ecosystems and at-risk urban-rural interface and intermix areas have been reduced by at least one hazard rating class?	Wildland Fire and Fuel Management: Manage hazardous fuels in fire-dependent ecosystems and at-risk urban-rural interface and intermix areas.	Annual	1-5 years	A

2006 Forest Plan, Chapter 4, Table IV-3. Monitoring Matrix. Desired Condition and Objective Monitoring Items (Categories 2, 3 and 4).					
Resource Area	Monitoring Question(s)	Driver: Applicable Code of Federal Regulations (CFR), Forest Plan Desired Condition or Forest Plan Objective	Measurement Frequency	Evaluation/Reporting Frequency	Precision and Reliability Class
Fire	What is the distribution of National Forest System acres by fire condition class? How many acres have been treated that result in an improvement of at least one fire condition class? What is the number and size of wildfires?	Wildland Fire and Fuel Management: Reduce wildland fire intensities and the number of catastrophic fires.	Annual	1-5 years	A
Non-Native Invasive Species	To what extent is forest management contributing or responding to populations of terrestrial/aquatic non-native invasive species of concern?	Executive Order #13112; R-9 Non-Native Invasive Species Strategy.	1-5 years	1-5 years	A and B

Monitoring Forest Goals and Objectives

In addition to the goals and objectives identified in Table IV-3, Chapter II of the 2006 Forest Plan enumerates further goals and objectives that are available for monitoring shown in the table below.

Forest goals are broad statements describing conditions the Huron-Manistee National Forests will strive to achieve and are enumerated in Chapter II, 2006 Forest Plan. They are not meant to be measured directly and there are no specific periods for achieving them. Forest objectives are clear and specific statements of planned results to be achieved within a stated period.

2006 Forest Plan, Chapter II, Forestwide Goals and Objectives, Health and Safety Goals.	
Goal Number	Goal Narrative
G-H&S-1	<ul style="list-style-type: none"> • Suppress wildfires using an appropriate management response, in a manner compatible with Management Area objectives. Prevention, pre-suppression and suppression activities will be based on analysis of past fire occurrence, fire intensities and values at risk.
G-H&S-2	<ul style="list-style-type: none"> • Encourage adequate fire prevention, fire-safe construction, and presuppression activities on private lands in wildland/urban interface fire prone areas.
G-H&S-3	<ul style="list-style-type: none"> • Fire suppression activities should be the least impacting to the environment while providing for safety, but still achieve the objectives of fire suppression.
G-H&S-4	<ul style="list-style-type: none"> • Suppress fires occurring on private lands inside the Forests' fire protection boundary as defined under established agreements.
G-H&S-5	<ul style="list-style-type: none"> • Create agreements for fire detection and suppression on National Forest System lands with cooperating firefighting agencies to define suppression actions commensurate with established resource management prescriptions.

2006 Forest Plan, Chapter II, Forestwide Goals and Objectives, Health and Safety Goals (continued).	
Goal Number	Goal Narrative
G-H&S-6	<ul style="list-style-type: none">• Fire use is suitable on National Forest System lands. Fire use will, to the extent possible, mimic natural processes to accomplish resource objectives, while protecting wilderness values and cultural, historical, and developed resources.
G-H&S-7	<ul style="list-style-type: none">• Implement fuels reduction and fuelbreak projects where conditions warrant for the protection of life, property, and safety. High-risk areas adjacent to private land will receive treatment priority.
G-H&S-8	<ul style="list-style-type: none">• Provide for the protection of National Forest System lands and for the property and safety of users.
G-H&S-9	<ul style="list-style-type: none">• Provide for Law Enforcement and compliance patrols based on user activity and resource protection needs.
G-H&S-10	<ul style="list-style-type: none">• Maintain a transportation system that meets health and safety, resource and administrative needs.

2006 Forest Plan, Chapter II, Forestwide Goals and Objectives, Relations and Partnerships Goals.	
Goal Number	Goal Narrative
G-PR&P-1	<ul style="list-style-type: none"> • Work to achieve informed public consent during development and implementation of land and resource management plans and programs.
G-PR&P-2	<ul style="list-style-type: none"> • Through information programs, explain the correlation of resource management direction and activities with public interests and concerns. Design programs and information based on audience analyses as well as land and resource needs.
G-PR&P-3	<ul style="list-style-type: none"> • Cooperate with and encourage agencies, tribes, states, counties and other partners in education and outreach.
G-PR&P-4	<ul style="list-style-type: none"> • Implement a public information and education program to explain areas of special significance in coordination with other public and private organizations to reduce the number, intensity, and cost of conflict-producing and resource-damaging situations.
G-PR&P-5	<ul style="list-style-type: none"> • Work with affected American Indian tribes in a government-to-government relationship.
G-PR&P-6	<ul style="list-style-type: none"> • Use a combination of personal contacts, brochures, maps, and informational signing to inform and educate users about forest management.
G-PR&P-7	<ul style="list-style-type: none"> • Identify and publicize resource management opportunities that will help volunteer organizations, individuals, and local communities enhance their self-sufficiency and social well-being.
G-PR&P-8	<ul style="list-style-type: none"> • Integrate public involvement and forest management with regional and national objectives.
G-PR&P-9	<ul style="list-style-type: none"> • Work to acquire public input and participation in a timely manner in developing programmatic and site-specific environmental resource management analyses.

2006 Forest Plan, Chapter II, Forestwide Goals, and Objectives, Natural Resources Goals.	
Goal Number	Goal Narrative
G-NR-1	<ul style="list-style-type: none"> • Monitor and evaluate effectiveness of management practices.
G-NR-2	<ul style="list-style-type: none"> • Manage designated old growth across all management areas and vegetation classes emphasizing old growth characteristics.
G-NR-3	<ul style="list-style-type: none"> • Integrate the Scenery Management System (see Forest Plan Appendix F-Glossary for definitions) into project-level planning.
G-NR-4	<ul style="list-style-type: none"> • Meet species viability needs, achieve fire hazard reduction, and accomplish fiber production from regulated (Allowable Sale Quantity) and non-regulated (non-chargeable) forestlands primarily through timber harvest.
G-NR-5	<ul style="list-style-type: none"> • Monitor wildlife responses to management practices using identified Management Indicator Species to determine the effects of management practices on wildlife and fish populations.
G-NR-6	<ul style="list-style-type: none"> • Reduce non-native invasive species infestations and prevent new invasive species from becoming established, when possible.
G-NR-7	<ul style="list-style-type: none"> • Wildlife and fisheries habitats and plant communities shall be managed to maintain viable populations of existing native and desired non-native species.
G-NR-8	<ul style="list-style-type: none"> • Maintain or improve the populations of endangered, threatened, or sensitive species or communities.
G-NR-9	<ul style="list-style-type: none"> • Manage the 5-mile (8 km) radius around Tippy Dam to benefit the Indiana bat.
G-NR-10	<ul style="list-style-type: none"> • Restore and maintain savannahs, prairies, dry grasslands, mesic grasslands, shrub/scrub and oak-pine barrens in areas where they were known to previously occur, to provide for habitat diversity and to meet species viability needs.
G-NR-11	<ul style="list-style-type: none"> • Utilize prescribed fire to meet management direction as appropriate for the ecosystems involved.

2006 Forest Plan, Chapter II, Forestwide Goals and Objectives, Natural Resources Goals (continued).	
Goal Number	Goal Narrative
G-NR-12	<ul style="list-style-type: none"> • Encourage cooperation and coordination with responsible government land and resource management agencies, tribes and partners in program management such as recreation; Wild and Scenic River and State Natural Rivers; minerals; air quality; law enforcement, fire; water quality; endangered, threatened, and sensitive species; non-native invasive species and insect and disease.
G-NR-13	<ul style="list-style-type: none"> • Cooperate with individuals; organizations and local, state, Tribal and federal governments to promote ecosystem health and sustainability across landscapes.
G-NR-14	<ul style="list-style-type: none"> • Manage riparian areas consistent with resource conditions, management objectives and designated water use. Reduce nonpoint pollution to the maximum extent feasible and protect the hydrologic functions of watersheds, including both surface and groundwater systems.
G-NR-15	<ul style="list-style-type: none"> • Manage vegetation within the Streamside Management Zone for late seral stages through natural successional processes emphasizing the retention of a sufficient number of trees to protect water quality and provide a source of recruitment for large wood to the adjacent aquatic system.
G-NR-16	<ul style="list-style-type: none"> • Monitor and measure effects at the 5th or 6th level watershed.
G-NR-17	<ul style="list-style-type: none"> • Manage oligotrophic lakes with 100 percent of National Forest ownership so as not to change the trophic status; allow no more than a 10-percent decline in trophic status in other oligotrophic lakes and lakes with a mesotrophic status; lakes with a eutrophic status will maintain fishable and swimmable waters.
G-NR-18	<ul style="list-style-type: none"> • In cooperation with permittees, favor selective treatment of vegetation in transmission line rights-of-way to improve wildlife forage.

2006 Forest Plan, Chapter II, Forestwide Goals and Objectives, Natural Resources Goals (continued).	
Goal Number	Goal Narrative
G-NR-19	<ul style="list-style-type: none"> National Forest System lands will be available for non-surface-disturbing mineral exploration and extraction.
G-NR-20	<ul style="list-style-type: none"> Mineral exploration and development occurs and is consistent with management area direction and subject to valid existing rights. Appropriate restrictions are placed in leases to protect the environment.
G-NR-21	<ul style="list-style-type: none"> Protect the rights of the federal government, encourage inventory and development of federal minerals, respect state and private mineral rights, and ensure operators take reasonable and prudent measures to prevent unnecessary disturbance to the surface.
G-NR-22	<ul style="list-style-type: none"> Minimize or prevent the development of pest problems. Where pest problems are unavoidable, select the solution, which provides the most benefits while meeting control objectives.
G-NR-23	<ul style="list-style-type: none"> Land adjustments (purchase or exchange) will consider only the interest needed to achieve land management objectives and must satisfy one or more of the following purposes: (1) accomplish objectives of public law or regulation; (2) obtain land needed to meet demands for National Forest System resources; (3) result in more efficient land ownership patterns as indicated by reduced resource management costs.
G-NR-24	<ul style="list-style-type: none"> The priority for land acquisition is to purchase lands or partial interests needed to protect endangered, threatened, and sensitive species and areas possessing unique natural environments or significant cultural resources.
G-NR-25	<ul style="list-style-type: none"> Reduce the net miles of roads on the Forests by emphasizing closures of roads determined to be non-essential for resource management.
G-NR-26	<ul style="list-style-type: none"> Locate administrative boundaries of recreation areas and place informative signs describing appropriate activities for the area.

2006 Forest Plan, Chapter II, Forestwide Goals and Objectives, Natural Resources Goals (continued).	
Goal Number	Goal Narrative
G-NR-28	<ul style="list-style-type: none"> • Provide for a combination of motorized and nonmotorized recreation opportunities.
G-NR-29	<ul style="list-style-type: none"> • Provide a variety of access opportunities for a range of user abilities consistent with management area direction and Standards and Guidelines.
G-NR-30	<ul style="list-style-type: none"> • Design and manage trails for a primary seasonal use, to discourage conflicting uses. Prevent motorized and nonmotorized uses from occurring at the same time during any season of the year. Trails may also have secondary uses.
G-NR-31	<ul style="list-style-type: none"> • Manage Off-Highway Vehicles, including snowmobiles, by designating trails or routes to minimize user conflicts and to provide for user satisfaction, resource protection and public health and safety.
G-NR-32	<ul style="list-style-type: none"> • Emphasize levels 1, 2 and 3 facilities for developed and dispersed recreation.
G-NR-33	<ul style="list-style-type: none"> • Manage National Recreation Trails, Byways, Rivers, and Wildernesses in accordance with the commitments associated with their designation.
G-NR-34	<ul style="list-style-type: none"> • Integrate historical, environmental and cultural information into plans, assessments, analyses and decision documents, as appropriate.
G-NR-35	<ul style="list-style-type: none"> • Emphasize and promote the use of carryout methods of trash disposal.
G-NR-36	<ul style="list-style-type: none"> • All management activities should meet or exceed the Scenic Integrity Objectives established for the Forests through the Scenery Management System.

Monitoring Forest Plan Desired Future Conditions

A desired future condition is the hoped-for results to be achieved through the implementation of the Forest Plan in both the short- and long-term that will sustain ecological conditions and meet human needs, now and in the future.

2006 Forest Plan, Chapter II, Forestwide Desired Future Condition.	
Desired Future Condition Number	Desired Future Condition Narrative
DFC-1	• All management activities provide for safe conditions for the public and employees.
DFC-2	• Recreation management provided is compatible with the Recreation Opportunity Spectrum objectives.
DFC-3	• The North County National Scenic Trail is constructed and administered as a premier hiking and backpacking trail. The trail will highlight significant scenic, historic, natural and cultural qualities.
DFC-4	• Designated National Wild, Scenic, and Recreation Rivers are managed according to the management plan for the individual river.
DFC-5	• The total of early successional habitat less than or equal to 15 years, and open-land habitat, such as agricultural, urban development and roads, should generally not exceed 66 percent of the area within any 6th level watershed on the forests. In most cases, 6th level watersheds have an area up to 40,000 acres associated with a creek and tributary.
DFC-6	• Areas with unique character are protected.
DFC-7	• Prairies, savannahs, and oak-pine barrens have been restored and maintained on approximately 10,000 acres within old-growth areas.
DFC-8	• Maintain favorable conditions of water flow and quality. Management practices will not result in a long-term decline in water quality conditions.
DFC-9	• Indiana bat, Karner blue butterfly, bald eagle, Kirtland's warbler, piping plover and Pitcher's thistle are managed according to their recovery plans.
DFC-10	• Severe and moderately eroding streambanks are restored.

2006 Forest Plan, Chapter II, Forestwide Desired Future Condition.	
Desired Future Condition Number	Desired Future Condition Narrative
DFC-11	<ul style="list-style-type: none">• Habitat needs of riparian-dependent species are met and that habitat is maintained, especially habitat for threatened, endangered and sensitive species.
DFC-12	<ul style="list-style-type: none">• The cumulative amount of streamside stabilization over time does not exceed five percent of the total shoreline length of a river system within National Forest System boundaries.
DFC-13	<ul style="list-style-type: none">• In-stream large wood meets objectives stated in Table II-2, Forest Plan.

2006 Forest Plan, Chapter II, Forestwide, Desired Future Condition for Large Wood, Table II-2.

Stream Order	Number of Large Wood Structures per 300 Feet
1-2	6-9 (108-160 per mile)
3-4	3-6 (54 -108 per mile)
DFC-14	• Vegetation Composition objectives for the end of the first decade are displayed in the Forest Plan, Table II-3.

2006 Forest Plan, Chapter II, Forestwide Desired Future Condition, Vegetation Composition Objectives (End of the First Decade), Table II-3.

Vegetation Class	Huron National Forest	Manistee National Forest
	Percent	Percent
Aspen/Birch	16-22	10-16
Barrens and Savannahs	1-3	2-5
High-Site Oaks	5-11	15-21
Lowland Conifers	2-8	0-5
Lowland Hardwoods	1-4	4-10
Long-lived Conifers	15-21	17-23
Low-Site Oaks	12-18	13-19
Northern Hardwoods	2-8	8-14
Openings	4-9	4-10
Short-lived Conifers	18-24	2-8

Monitoring Forest Plan Standards and Guidelines

Standards and Guidelines are the specific technical direction for managing resources. They provide another link in moving toward the desired conditions. Standards and Guidelines apply Forest-wide to National Forest System lands, unless more specific management area direction is found in Chapter III of the Forest Plan. Standards are required limits to activities. Standards ensure compliance with laws, regulations, executive orders, and policy direction. Deviations from Standards must be analyzed and documented in Forest Plan amendments.

Guidelines are preferable limits to management actions that may be followed to achieve desired conditions. Guidelines are generally expected to be carried out. They help the Forests to reach the desired conditions and objectives in a way that permits operational flexibility to respond to variations over time. Deviations from Guidelines must be analyzed during project-level analysis and documented in a project decision document, but these deviations do not require a Forest Plan amendment.

FY 2008 Huron-Manistee Nationals Monitoring & Evaluation Report

This report is divided into two sections:

- **Section 1** addresses monitoring items that are required by the National Forest Management Act (NFMA), and
- **Section 2** presents the results of monitoring guided by attainment of goals and objectives, implementation of standards and guidelines, and the effects of prescriptions and management practices.

Section 1 Monitoring Items Required by NFMA

Minimum monitoring and evaluation requirements have been established through the NFMA at 36 CFR 219. All legally required monitoring tasks were accomplished during FY 2008, including –

Comparison of Projected and Actual Outputs and Services

How close are projected outputs and services to actual? How do actual outputs compare to those projected in the 2006 Forest Plan, Appendix D, Proposed and Probable Practices, Goods Produced, and Other Information.

Moving ecological conditions on the Huron-Manistee National Forests in the direction of the desired future conditions outlined in the Forest Plan, necessitates managing vegetation through appropriate treatments. During Forest Plan revision, vegetative treatments were projected which would achieve the desired species composition, age class distribution, Forestwide goals and objectives, and desired future condition.

Specific forest management treatments or activities are outlined in Appendix D of the 2006 Forest Plan, as found in the following tables:

- Table D-2. Volume by Vegetation Class Breakdown on Lands Suitable for Timber Production for the First and Second Decades.
- Table D-3. Volume by Vegetation Class Breakdown on Lands Not Suitable for Timber Production for the First and Second Decades.
- Table D-4. Acres of Proposed and Probable Silvicultural Methods in the First and Second Decades from Lands Suitable for Timber Production.

- Table D-5. Acres of Proposed and Probable Silvicultural Methods in the First and Second Decades From Lands Note Suitable for Timber Production

Unfortunately, tracking and reporting acres and timber volumes because of treatments and activities is problematic as Forest Service corporate databases do not contain explicit vegetation classes as depicted in these tables. Furthermore, reports from the databases are not available which contain suitability and vegetation classes as variables in a two-way table.

Attempts were made in the Monitoring & Evaluation Reports for fiscal years 2006 and 2007 to provide the information in the same format as the 2006 Forest Plan tables by analyzing on-site timber sale data. However, this method proved to be inefficient, time consuming, and susceptible to error.

Therefore, the following three tables replace Tables D-2 and D-3 listed above and displays the data in a format, which is available from Forest Service corporate databases.

Tables 1 and 2 remove the **vegetation classes**, which are unavailable. Suitability, however, is available. The actual 2006 Forest Plan board feet and cubic feet output projections remain unchanged.

Table 1. Volume on Lands Suitable for Timber Production for the First and Second Decades.

Decade 1		Decade 2	
Million Board Feet	Thousand Cubic Feet	Million Board Feet	Thousand Cubic Feet
910.0	1516.8	1,002	1,671.8

Table 2. Volume on Lands Not Suitable for Timber Production for the First and Second Decades.

Decade 1		Decade 2	
Million Board Feet	Thousand Cubic Feet	Million Board Feet	Thousand Cubic Feet
250.0	417.0	319.0	531.6

Table 3 depicts projected timber volume by **species codes**, which are derived from a corporate database report. The data is not available, however, by suitability. Even with this report, assumptions must be made to convert species codes to combined “vegetation classes”.

Table 3. Volume by Combined Vegetation Classes on Lands Suitable and Not Suitable for Timber Production for the First and Second Decades.

Species Codes	Decade 1		Decade 2	
Units	Million Board Feet	Thousand Cubic Feet	Million Board Feet	Thousand Cubic Feet
Aspen/Birch	271.0	451.7	325.0	541.7
Short- & Long-lived Conifer	604.0	1,004.5	694.0	1,157.4
Low- & High Site Oak	285.0	474.0	230.0	382.6
Mixed Hardwoods	0.0	0.0	73.0	121.7
Total Million Board Feet	1,160.0		1,322.0	
Total Thousand Cubic Feet		1,930.2		2,203.4

Table 4. Volume on Lands Suitable for Timber Production for FYs 2006, 2007, & 2008.¹

	MMBF	MCF
2006 Forest Plan Projected Average Annual Volume	91.0	151.7
FY 2006 Chargeable Volume	30.1	51.0
FY 2007 Chargeable Volume	39.6	66.0
FY 2008 Chargeable Volume	30.2	48.6

Source: I-Web corporate database, PTSAR (Sale Details) – PTSR201F, FY Awarded. Some timber volume tables in this report are not comparative because of rounding errors and pulling of data from different sources in the corporate databases.

Table 5. Volume on Lands Not Suitable for Timber Production for FY s 2006, 2007, & 2008.

	MMBF	MCF
2006 Forest Plan Projected Average Annual Volume	25.0	41.7
FY 2006 Non Chargeable Volume	9.7	16.2
FY 2007 Non Chargeable Volume	7.3	12.2
FY 2008 Non Chargeable Volume	7.3	12.2

Source: I-Web corporate database, PTSAR (Sale Details) – PTSR201F, FY Awarded.

¹ Timber volume tables in this report are not necessarily comparable because of reporting differences in dates, definitions, and assumptions in the various corporate databases.

Table 6. Timber Production Acreage by Vegetation Class from Suitable and Non-suitable Lands, FY s 2006, 2007, and 2008.

	Aspen & Other Hardwoods	Short / Long- lived Conifer & Other	Low / High- site Oak & Other	Mixed Hardwoods & Other	TOTAL
Volume Projected in the 2006 Forest Plan - MMBF	27.1	41.6	22.3	0	91.0
Volume Projected in the 2006 Forest Plan - MCF	45.2	69.3	37.2	0	151.7
MMBF - FY 2006	5.1	24.7	.8	9.4	40.0
MCF - FY 2006	8.5	41.2	1.3	15.7	66.7
MMBF - FY 2007	3.8	29.7	3.0	10.8	47.3
MCF - FY 2007	6.4	49.5	5.0	17.9	78.8
MMBF - FY 2008	2.8	22.7	2.4	9.6	37.5
MCF - FY 2008	4.7	37.8	4.0	16.0	62.5

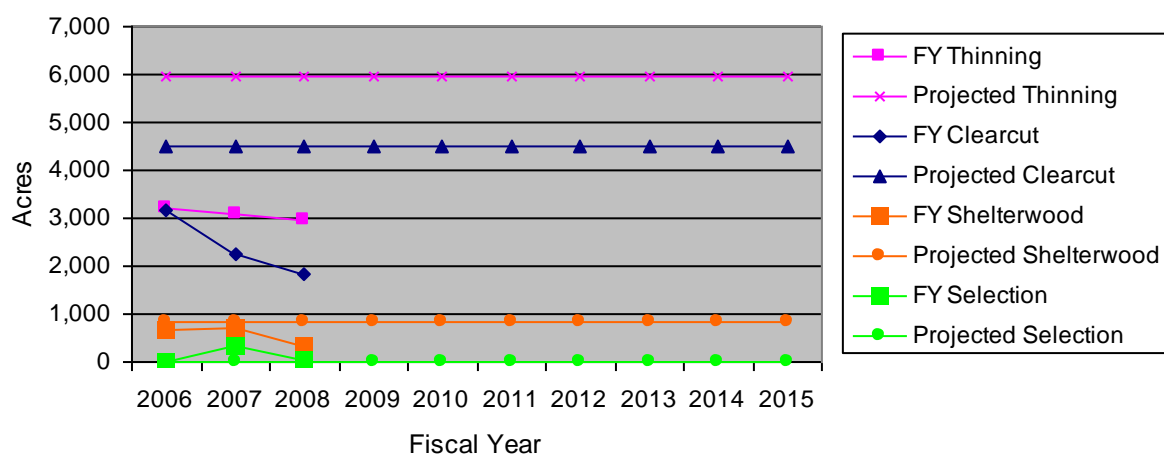
Source: I-Web corporate database, Cut and Sold (New) – CUTS203F.

Table 7. Acres of Proposed and Probable Silvicultural Methods in the First Decade from Lands Suitable for Timber Production, FY s 2006, 2007, and 2008 (Table D-4, Appendix D, 2006 Forest Plan).

	Thin	Clearcut	Shelterwood	Selection	TOTAL
Average Annual Projected in the 2006 Forest Plan	5,946	4,514	826	0	11,286
Actual Accomplished / Sold FY 2006	3,195	3,162	661	12	7,030
FY 2006 % of Forest Plan Estimate	54%	70%	80%	-	62%
Actual Accomplished / Sold FY 2007	3,070	2,245	694	321	6,330
FY 2007 % of Forest Plan Estimate	52%	50%	84%	-	26%
Actual Accomplished / Sold FY 2008	2,976	1,820	336	27	5,159
FY 2008 % of Forest Plan Estimate	50%	40%	41%	-	46%

Source: Source: I-Web corporate database, Activity Data View query.

Figure 1. Acres of Projected Average Annual Silvicultural Treatments Compared With Actual FY Accomplishments



Restoration variables as portrayed in the 2006 Forest Plan, Appendix D, Table D-5 are not maintained in any Forest Service corporate database. Since tracking and reporting ecological restoration efforts is very important, each Ranger District has been asked to track restoration accomplishment. The results of for FY 2008 are shown in Table 8.

Table 8. Acres of Proposed and Probable Silvicultural Methods in the First Decade from Lands Not Suitable for Timber Production, Fiscal Years 2006, 2007, & 2008 (Table D-5, Appendix D, 2006 Forest Plan).

Ecological Restoration Activity	Vegetation Class	Aspen/birch	Short-lived conifer	Long-lived conifer	Low-site oak	High-site oak	Northern hardwoods/ Lowland hardwoods	Non-forested Dune	Total
Create Barrens	Projected in the Forest Plan – Average Annual	0	13	42	79	255	0	0	772
	Accomplished FY 2006	0	80	25	0	0	0	0	105
	Accomplished FY 2007	0	0	0	0	0	0	0	0
	Accomplished FY 2008	0	0	0	297	0	0	0	297
Create Openings	Projected in the Forest Plan – Average Annual	0	199	530	80	0	0	0	809
	Accomplished FY 2006	0	0	53	0	0	0	0	53
	Accomplished FY 2007	5	0	91	0	0	0	0	96
	Accomplished FY 2008	0	39	0	0	0	0	0	39
Old Growth to Barrens	Projected in the Forest Plan – Average Annual	0	0	0	0	0	0	0	0
	Accomplished FY 2006	0	0	0	0	0	0	0	0
	Accomplished FY 2007	0	302	0	0	0	0	0	302
	Accomplished FY 2008	0	0	0	0	0	0	0	0
Old Growth² Restoration	Projected in the Forest Plan – Average Annual	0	0	0	0	0	0	0	0
	Accomplished FY 2006	0	0	31	0	0	6	48	85
	Accomplished FY 2007	110	466	53	145	0	6	89	869
	Accomplished FY 2008	146	233	107	268	213	249	125	1,341

Source: Huron-Manistee National Forests, Individual Ranger District tracking of accomplishments.

² While old growth restoration acreages were not projected in the Forest Plan, Standards do provide for an undetermined amount of old growth restoration, including prescribed fire and mechanical treatments.

Table 9. Forest Plan Projected Outputs Compared to Actual Outputs for Fiscal Years 2006, 2007, and 2008 (Table D-6, Forest Plan).

Management Activity or Practice	Unit of Measure (per year)	Projected Average Annual Amount in the First Decade	FY 2006 Actual	FY 2007 Actual	FY 2008 Actual
Wildlife and Fish					
Manage Terrestrial Habitat	Acres	7,000	1,306	1,988	0
Manage Stream Habitat	Miles	121	33	36	35
Manage Lake Habitat	Acres	240	16	18	260
Nonnative Plant Species					
Manage Noxious Weeds	Acres	4,000	70	159	86
Range					
Manage Rangeland Vegetation	Acres	312	5	5	0
Fuels					
Hazardous Fuels Reduction and Fuelbreaks	Acres	10,000	4,546	4,804	8,050
Watersheds					
Maintain and Improve Watershed Condition	Acres	100	26	17	16
Facilities					
Decommission Classified and Unclassified Roads	Miles	20	10.2	3.1	01.
Improve Transportation System – Roads	Miles	6	.5	9.8	8.3
Improve Transportation System – Trails	Miles	38	8	8	7
Vegetation					
Establish Forest Vegetation	Acres	5,990	4,300	1,840	2,280
Improve Forest Vegetation	Acres	935	0	401	129

Source: Huron-Manistee National Forests, Program Managers.

Comparison of Actual and Estimated Costs

How close are projected costs with actual costs?

Estimated costs are made annually before the fiscal year. Table 10 portrays actual versus estimated costs.

Table 10. Estimated Budget Costs Compared with Actual Costs.

Program	Estimated Costs	Actual Costs	Balance	Balance Percentage
Inventory & Monitoring	\$562,450	698,341.65	-\$135,892	124%
Land Management	\$447,000	\$384,852	\$62,148	86%
Minerals & Geology	\$388,000	\$380,754	\$7,246	98%
Forest Planning	\$101,000	\$125,046	-\$24,046	124%
Recreation, Heritage, Wilderness	\$867,351	\$866,667	\$684	100%
Timber	\$2,184,712	\$2,199,391	-\$14,679	101%
Vegetation & Watershed	\$403,000	\$467,584	-\$64,584	116%
Grazing Management	\$2,000	\$1,838	\$162	92%
Wildlife	\$950,662	\$1,166,671	-\$216,009	123%
BAER - Native Cool Grasses	\$30,000	\$23,979	\$6,021	80%
Sub-Total – National Forest System	\$5,936,174	\$6,315,124	-\$378,949	106%
Fire Preparedness	\$2,136,632	\$2,518,393	-\$381,761	118%
Hazardous Fuels Reduction	\$860,614	\$938,604	-\$77,990	109%
Emergency Suppression & Rehabilitation (BAER)		\$681,935	-\$681,935	
Sub-Total – Wildland Fire Management	\$2,997,246	\$4,138,932	-\$1,141,686	138%
Administrative Facilities Maintenance	\$137,700	\$137,097	\$603	100%
Legacy Road & Trail Maintenance	\$432,004	\$320,876	\$111,128	74%
Road Maintenance & Construction	\$738,301	\$705,621	\$32,680	96%
Facilities Maintenance	\$362,000	\$322,328	\$39,672	89%
Trails Improvement & Maintenance	\$285,400	\$286,827	-\$1,427	101%
Deferred Maintenance	\$15,000	\$16,355	-\$1,355	109%
Sub-Total – Capital Improvement & Maintenance	\$1,970,405	\$1,789,104	\$181,301	91%

Land & Water Conservation Fund	\$75,000	\$60,046	\$14,954	80%
Other	\$559,961	\$475,057	\$84,904	85%
Knutsen-Vandenberg Fund	\$1,416,873	\$770,441	\$646,432	54%
Knutsen-Vandenberg Special	\$177,000	\$170,633	\$6,367	96%
Fee Demo - Recreation Collections	\$276,000	\$272,294	\$3,706	99%
Maintenance of Quarters	\$8,000	\$8,813	-\$813	110%
Purchaser Elect Vegetation Treatments	\$60,002	\$7,153	\$52,849	12%
Salvage Sales	\$275,000	\$248,438	\$26,562	90%
Reforestation	\$60,000	\$54,971	\$5,029	92%
Sub-Total – Permanent & Trust Funds	\$2,907,836	\$2,067,846	\$839,990	71%
Federal Highway Trust Fund	\$10,020	\$9,568	\$452	95%
Federal Highway Aquatic Passage	\$155,000	\$155,000	\$0	100%
Federal Highway	\$25,000	\$16,400	\$8,600	66%
Timber Pipeline - Sale Preparation	\$76,227	\$64,462	\$11,765	85%
Sub-Total – Other Funds	\$266,247	\$245,430	\$20,817	92%
TOTAL	\$14,077,908	\$14,556,436	-\$478,527	103%

Source: WorkPlan, Report ID Trk2a, Resource Tracking Summary by Work Code, 05/02/2009.

Effects of Forest Management on Land, Resources, and Communities Adjacent to or Near the National Forests

What are the effects of forest management being planned on land, resources, and communities adjacent to or near the Huron-Manistee National Forests?

The federal government makes payments to states to cover some of the cost of local government services on tax-exempt National Forest System lands and, subsequently, the states pass those payments on to the counties in which National Forests are located.

“Payments in Lieu of Taxes” (PILT) are federal payments to local governments that help offset losses in property taxes due to nontaxable federal lands within their boundaries. PILT payments are calculated and made by the Department of Interior, Bureau of Land Management. These payments are appropriated annually by Congress based on available funding and formulas that take into account the population in the affected counties, the number of acres of federal land in those counties, and other payments received by the counties based on federal land payments. PILT payments help local governments carry out such vital services as firefighting and police protection, construction of public schools and roads, and search-and-rescue operations. PILT payments are one of the ways that the federal government can fulfill its role of being a good neighbor to local communities.

Payments are also made to states amounting to 25 percent of gross receipts from activities on National Forests, such as timber sales, mining, special uses and recreation. Congress passed the Secure Rural Schools and Community Self-Determination Act (SRS) in 2000, which allowed counties to choose a level payment based on the high-three year average of 25 percent payments, or to continue to receive 25 percent of the current year’s receipts. On the Huron-Manistee National Forests, Alcona, Crawford, Montcalm, Ogemaw, and Oscoda opted for the level payment. Iosco, Lake, Manistee, Mason, Mecosta, Muskegon, Newaygo, Oceana, and Wexford Counties continued with the payment based on current annual receipts.

On October 3, 2008, the Secure Rural Schools and Community Self-Determination Act of 2000 was reauthorized as part of Public Law 110-343. The new Secure Rural Schools Act has some significant changes. To implement the new law, the Forest Service requested states and counties to elect either to receive a share of the 25-percent rolling average payment or to receive a share of the Secure Rural Schools State (formula) payment by November 14, 2008 (county elections). A county electing to receive a share of the State payment also was requested to allocate between 15 to 20-percent of its share for one or more of the

following purposes: projects under Title II of the Act; projects under Title III; or the Treasury of the United States (county allocations).

Conclusions

The following Table 11 shows the breakdown of 25% Funds, SRS, and PILT payments are shown for FY 2008.

Table 11. Payments to Counties.

County	Acres	25% Fund	SRS	PILT
Alcona	114,742	\$116,253.94	\$0.00	\$70,762.00
Crawford	38,447	\$0.00	\$41,208.04	\$64,698.00
Iosco	113,840	\$115,638.94	\$0.00	\$110,537.00
Lake	112,437	\$52,295.29	\$0.00	\$144,214.00
Manistee	87,701	\$0.00	\$106,210.74	\$115,962.00
Mason	60,703	\$28,233.42	\$0.00	\$89,543.00
Mecosta	3,459	\$0.00	\$3,028.41	\$3,442.00
Montcalm	1,760	\$0.00	\$2,163.15	\$3,462.00
Muskegon	12,547	\$5,835.70	\$0.00	\$24,136.00
Newaygo	110,963	\$0.00	\$133,141.98	\$129,730.00
Oceana	53,342	\$24,809.77	\$0.00	\$62,563.00
Ogemaw	20,183	\$0.00	\$21,739.67	\$1,888.00
Oscoda	154,534	\$0.00	\$141,898.41	\$103,044.00
Wexford	96,877	\$45,076.36	\$0.00	\$105,813.00
TOTAL	981,535	\$388,143.42	\$449,390.40	\$1,029,794.00

Source: W.S. Department of Interior, Payments in Lieu of Taxes (PILT) County Payments and Acres; Website: <http://www.nbc.gov/pilt/pilt/search.cfm>.

U.S. Forest Service, Draft Payment Detail Report PNF, All Services Receipts (ASR-10-02) – 25% Fund and SRS.

Lands are Adequately Restocked

Are harvested lands adequately restocked after five years?

National Forest Management Act regulations require cutover lands to be adequately restocked within five years. Regeneration occurs naturally (typically aspen), or by planting (red pine) or seeding (jack pine).

Stocking surveys were conducted on 4,167 acres in FY 2008. Acres that do not have adequate stocking will be reexamined and a determination made as to which of these lands are necessary to reforest. (Source: FACTS Web Report: Activity Code 4341, Stocking Surveys).

Conclusions

In FY 2008, 1,664 acres were certified as satisfactorily stocked. Table 12 indicates the classifications of the certifications.

Table 12. Acres of Land Certified as Satisfactorily Stocked.

Type of Regeneration	Acres
Natural Regeneration with Site Preparation	682
Natural Regeneration without Site Preparation	130
Planted Areas	852
Seeded Areas	0
Total	1,664

Source: FACTS Web Report: Table 21, Certification of Reforestation and TSI acres.

Timber Product Mix, Timber Resource Sale Schedule

Is the timber product mix and timber output at, or below, levels defined in the Timber Resource Sale Schedule?

The **1986 Forest Plan** set a maximum Allowable Sale Quantity (ASQ) of 82.2 MMBF (million board feet) per year for the first decade and 123.6 MMBF for the second decade.

For the 20-year period of the 1986 Forest Plan, fiscal years 1986-2005, the sold volume was 1,213 MMBF, or approximately 74 percent of the first decade ASQ. The Forests have not exceeded the ASQ, or the demand for timber.

The **2006 Forest Plan** established an allowable sale quantity (ASQ) of 91 MMBF per year.

In FY 2008, the Huron-Manistee National Forests offered 86,816 CCF (approximately 53 MMBF). However, only 60,429 CCF (approximately 37.4 MMBF) was actually awarded. There were four sales with new bidders; three of these sales had bid openings in the last part of August and in September. Although the lumber market was not extremely strong in Northern Michigan, it is more stable than the past two years.

In FY 2008, the Forests' sold 37.4 MMBF or 41 percent of the ASQ. Harvest volume in FY 2008 was 41.3 MMBF, or 45 percent of the ASQ.

In FY 2008, sawtimber accounted for approximately 24 percent of the total Forests' timber output and pulpwood accounted for 76 percent (timber from suitable and not suitable land).

The 2006 Forest Plan projected 55 percent sawtimber and 45 percent pulpwood (decade 1).

Table 13. Projected Average Annual Sawtimber and Pulpwood Volume Sold from Suitable and Not Suitable Land, Fiscal Years 2006, 2007, 2008.

	Aspen/Birch	Hardwood	Softwood	Total
	MMBF			
Forest Plan Projection – SAWTIMBER Average Annual Sold	6.3	18.8	25.4	50.5
Forest Plan Projection – PULPWOOD Average Annual Sold	20.8	3.5	16.2	40.5
FY 2006 SAWTIMBER Sold	1.7	1.2	8.5	11.4
FY 2006 PULPWOOD Sold	3.4	3.6	16.0	23.0
FY 2007 SAWTIMBER Sold	1.8	2.9	8.3	13.0
FY 2007 PULPWOOD Sold	2.2	4.9	23.0	30.1
FY 2008 SAWTIMBER SOLD	.8	1.4	6.6	8.8
FY 2008 PULPWOOD SOLD	2.0	10.5	16.0	28.5

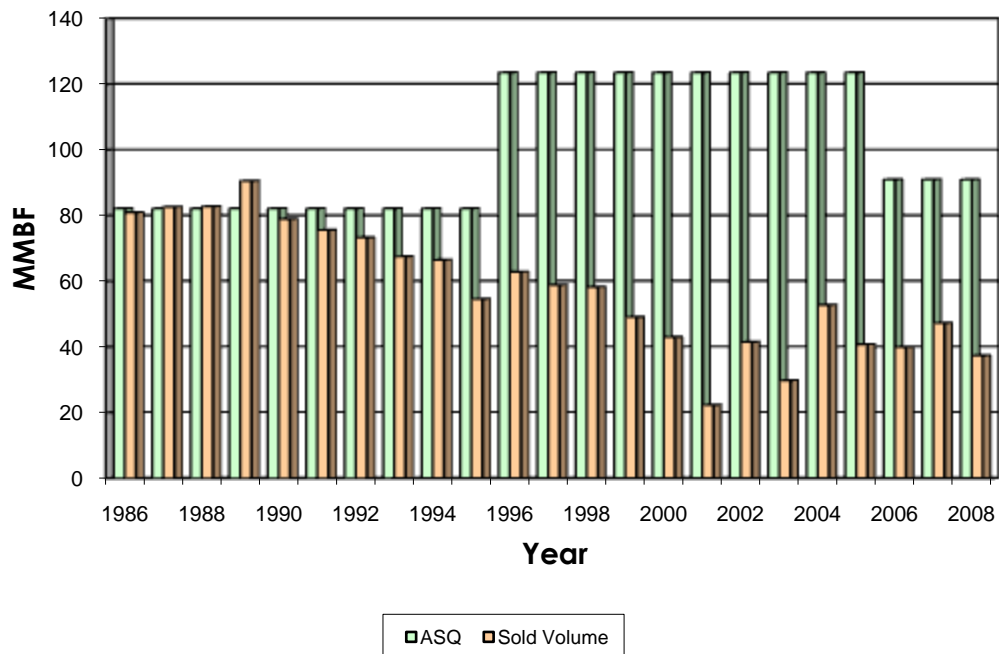
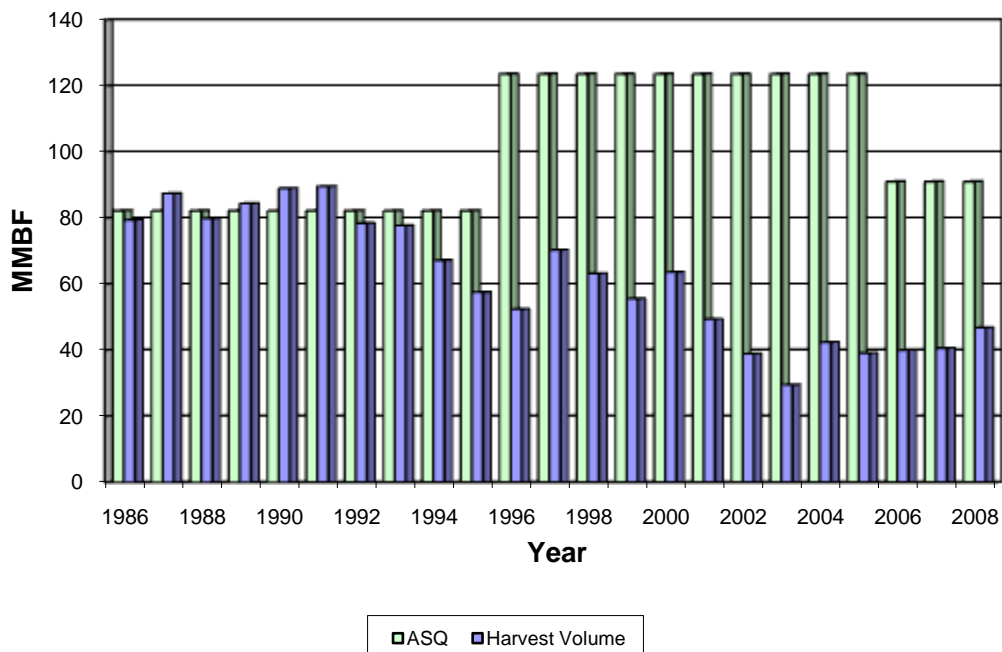
Source: I-Web corporate database, Cut and Sold (New) – CUTS203F.

Table 14. Sold Timber Volumes (MMBF).

Fiscal Year	Sold (MMBF)
Implementation of the 1986 Forest Plan	
1986	81.0
1987	82.7
1988	82.8
1989	90.6
1990	79.0
1991	75.6
1992	73.3
1993	67.5
1994	66.5
1995	54.6
1996	62.9
1997	58.9
1998	58.3
1999	49.1
2000	43.0
2001	22.3
2002	41.5
2003	29.8
2004	52.8
2005	40.8
Total – 1986 Forest Plan	1213.0
Total – 1986 Forest Plan, Average MMBF/Year	60.7
Implementation of the 2006 Forest Plan	
2006	40.0
2007	47.3
2008	37.5

Source: I-Web corporate database, Cut and Sold (New) – CUTS203F.

Figure 2 and Figure 3 below compare sold volumes and harvest volumes with Annual Sale Quantity (ASQ).

Figure 2. ASQ and Sold Volumes, 1986-2008**Figure 3. ASQ and Harvest Volumes, 1986-2008**

Population Trends of Brook Trout and Mottled Sculpin - Management Indicator Species (MIS)

What are the population trends of management indicator species (MIS)? Are minimum viable populations of appropriate native and desirable non-native species being maintained within the planning area?

The following protocol was developed in 2006 and is in the process of being implemented within budgetary constraints. A Management Indicator Habitat (MIH) approach will be used to The Wisconsin Index of Biotic Integrity (IBI; Lyons et al. 1996; Wang et al. 1997) will be used to monitor brook trout and mottled sculpin habitat and population trends. This methodology employs a Management Indicator Habitat (MIH) approach. A number of representative stations across the National Forest will be established. These representative streams will be chosen according to the following:

- Predominantly National Forest ownership within watershed – thus, any changes in the IBI can be attributed to land use practices on upstream National Forest system lands (as opposed to outside sources of variation and human disturbance beyond the control of the Forest Service).
- Small to medium sized, wadeable streams that can be efficiently electro-fished to obtain an accurate sampling of the entire fish population.

Application of the Wisconsin IBI on representative Management Indicator Habitat (coldwater stream ecosystems) will be done concurrently with the brook trout – mottled sculpin Management Indicator Species (MIS) monitoring.

The following streams will be used for MIH and MIS purposes (Table 15). While 17 streams in seven different watersheds will be monitored, sampling will be spread out over a five-year period on a rotational basis (average of three streams per year; thus, each stream will be sampled at least three times during the 10-15 year Plan implementation).

Table 15. Streams on the Huron-Manistee National Forests serving as Management Indicator Habitat (MIH) and Brook Trout – Mottled Sculpin Management Indicator Species (MIS) Locations. MIH will be monitored using the Wisconsin Index of Biotic Integrity (IBI).

Stream	Location		
	National Forest	Watershed	County
Mena Creek ¹	Manistee	White River	Newaygo
Peterson Creek	Manistee	Manistee River	Wexford/Manistee
Pine Creek ²	Manistee	Manistee River	Manistee
Poplar Creek	Manistee	Pine River	Wexford
Douglas Creek	Huron	Au Sable River	Crawford
Blockhouse Creek	Huron	Au Sable River	Oscoda
Ninemile Creek	Huron	Au Sable River	Oscoda
Hoppy Creek	Huron	Au Sable River	Alcona/Iosco
McDonald Creek	Huron	Au Sable River	Alcona
Roy Creek	Huron	Au Sable River	Alcona
Loud Creek	Huron	Au Sable River	Alcona
Buck Creek	Huron	Tawas River	Iosco
Gordon Creek	Huron	Tawas River	Iosco
Loud Creek	Huron	Tawas River	Iosco
Indian Creek	Huron	Tawas River	Iosco
Vaughn Creek	Huron	Au Gres River	Iosco

¹ Mena Creek will be sampled upstream of the impoundment (Minnie Pond).

² Pine Creek will be sampled upstream of Steinberg Road.

Five hundred-foot MIS sampling stations were established on Peterson, Pine, and Poplar Creeks, three of the above streams, in 2007 and 2008. These were the first and second years of MIS sampling under the 2006 Forest Plan.

Brook trout were captured in Peterson and Pine Creeks whereas none were captured in Poplar Creek. However, brook trout had been captured during previous sampling efforts in this stream. Sculpin were abundant in all three streams in both years of sampling. Rainbow trout were captured in both Pine and Poplar Creeks. However, rainbow trout captured in Pine Creek were presumed to be steelhead parr as this stream is accessible Great Lakes migratory spawning fish. Rainbow trout captured in Poplar Creek are “residents” as this stream is part of the Pine River system upstream of Tippy Dam on the Manistee River, a barrier to the upstream movement of Great Lakes migratory fish species.

Table 16. Aquatic MIS Population Data (relative abundance) from Established Sampling Stations on Peterson, Pine, and Poplar Creeks, Manistee National Forest.

	Peterson Creek		Pine Creek		Poplar Creek	
	2007	2008	2007	2008	2007	2008
Species						
Brown Trout	106	52	2	1	59	182
Brook Trout	1	5	3	3	0	0
Rainbow Trout	0	0	18 ¹	28 ¹	3	7
Sculpin	45	54	30	33	110	212

¹ Rainbow trout captured in Pine Creek, a Great Lakes accessible tributary of the Manistee River, ranged in length from 2 – 9 inches and are presumed to be steelhead parr.

Conclusions

- Peterson Creek - when compared to 2008, over two times the number of fish were captured in 2007. The disparity between the numbers of fish between years may be related to the high flow/sediment events, which occurred in June 2008.
- Fish in the sampling station reach (below Warfield Road) were utilizing the large wood structures placed in the stream as well as natural cover such as undercut banks and existing large wood. The amount of gravel present that could be utilized by spawning trout in this reach was greater than observed in other reaches. This is likely due the Warfield Road culvert acting as a hydraulic control, increasing gradient in a downstream direction and impounding some sediment upstream. This sampling station is also located downstream of two USFS-maintained sediment basins.
- Pine Creek is important both as a coldwater tributary for salmon and steelhead production and for its ability to support populations of resident trout. While no comparative population estimates were made, the completion of habitat improvement (large wood structures) appears to have increased the overall numbers of fish present within this stretch of stream upstream of Steinberg Road. With the amount of sand substrate present in this stretch of Pine Creek, it demonstrates the effectiveness of these large wood structures to create suitable habitat that fish are able to utilize. While the overall numbers of fish may have increased due to the installation of the large wood structures, the potential exists to create more instream cover in this stretch of stream.

- Poplar Creek - Poplar Creek is important spawning and nursery tributary for the Pine River and supports its own populations of resident trout. Both brown trout and rainbow trout appeared to utilize areas of the stream with remnants from old beaver dams; this is probably due to the increased amounts of large wood structure subsequent deep scoured holes in these areas.
- In 2008, overall trout numbers were up nearly three times from the previous year although average length had decreased from 7.2" to 4.1". The decrease in the numbers of larger trout within the sampling reach could be due to the partial filling in of some of the deeper holes with sediment from the road washout (the sampling site is located just downstream from the confluence with Dowling Creek where a major washout occurred in 2006 during a storm event).
- Brook trout had been captured during previous sampling efforts in Poplar Creek however, none were captured during the 2007 and 2008 surveys. This could be due to competition with brown trout.

A large number of sculpin were captured at all three streams which is a good indication of a healthy cold-water stream with good water quality. Continued MIS sampling should occur annually for at least ten years to develop baseline population data. Actual population estimates will be made, where possible, for comparative purposes. Additional MIS monitoring is also planned for the other streams identified in Table 15.

Population Trends of Ruffed Grouse – Management Indicator Species

What are the population trends of management indicator species? What are the relationships of the population trends to habitat changes?

For MIS, population estimates are made from aerial surveys, track surveys, nest counts, mark-recapture techniques or other population survey methods appropriate for quantifying the size of populations.

The Forest Plan identified six terrestrial wildlife species to serve as Management Indicator Species (Ruffed Grouse, Brook Trout, Mottled Sculpin, Bald Eagle, Kirtland's Warbler, Karner Blue Butterfly). These species were selected because they represent particular environmental conditions for a variety of species needing similar habitat conditions. Monitoring the quantity and quality of habitat and population trends for Management Indicator Species, helps assess how well we are maintaining habitat and viability of all species.

The Forests have collected monitoring data for a variety of habitat conditions and population trends for Management Indicator Species. Strategies and Populations Trends for Bald Eagle, Karner Blue Butterfly and Kirtland's Warbler are reported above, under Endangered, Threatened and Sensitive species. Monitoring, inventories, and data collection for Endangered, Threatened, and Regional Forester's Sensitive species covered Indiana Bat, Piping Plover, and Pitcher's Thistle, as well. In addition, we have worked with the Michigan Department of Natural Resources and other groups to monitor and evaluate Black Bear, American Woodcock, Eastern Pipistrelle, Wood Turtle, Northern Goshawk, Red-shouldered Hawk, American Marten, and sensitive plant species.

Karner Blue Butterfly and Kirtland's Warbler monitoring results are reported above, under Endangered, Threatened and Sensitive species.

Brook Trout is covered elsewhere, under Fisheries Habitat.

Mio Ranger District surveyed Ninemile Creek and found it to have been dammed by beavers most of its length. Therefore, habitat for brook trout in this creek is poor.

Mottled Sculpin is covered elsewhere, under Fisheries Habitat.

Ruffed Grouse are monitored by spring "drumming" count surveys, by Forest staff, volunteers, and Tribal participants. Each route of 17 to 20 "stops" (12 "stops" on Tribal survey routes) is run three times between mid-April and late May, listening away from the vehicle for 4 minutes at each permanently marked "stop", and recording the number of drums heard. "Drums per stop" is the index

of grouse drumming activity compared from route-to-route and year-to-year. Forest Service staff and volunteers monitor Buhl, North Black River, and Kellogg Tower routes, and Grant Township, Marilla and Pine River GMA Grouse Management Area (GMA) routes. Tribal surveyors assess the Wagon Wheel GMA route on NFSL, as well as 1836 Reservation, 1855 Territory, and Thompsonville routes.

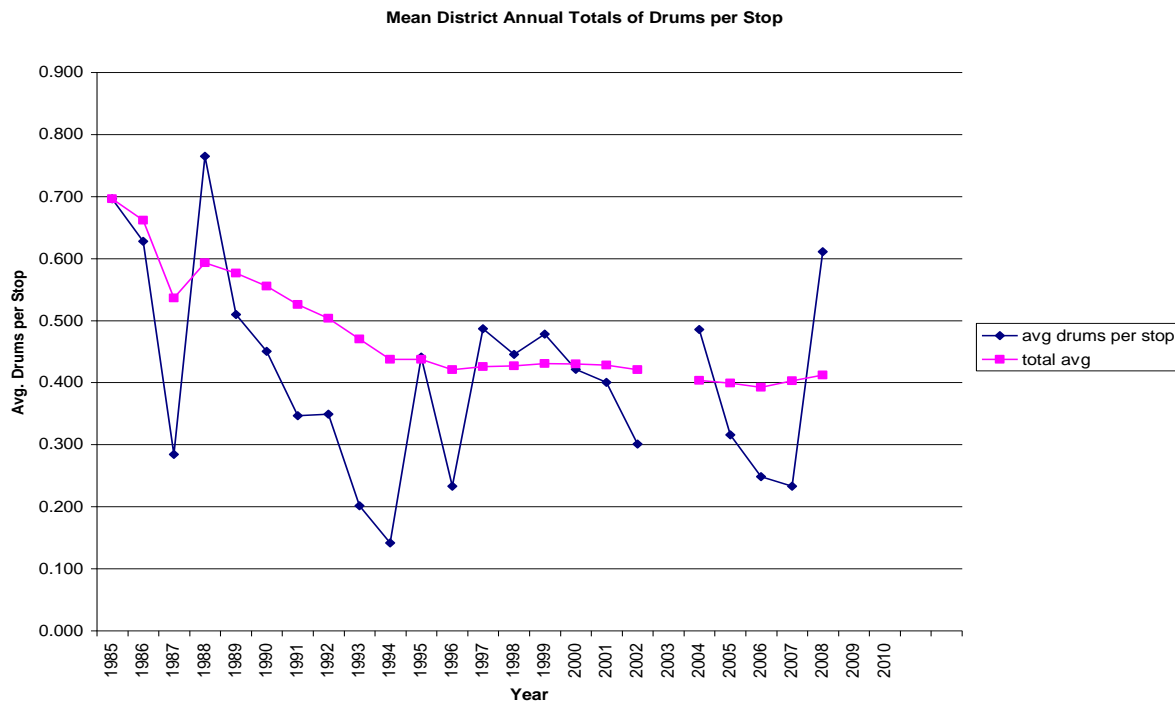
In 2008, drums per stop averaged 0.75 on Forest Service routes, ranging from 1.4 drums/stop on the Buhl route, to 1.35 at Marilla Grouse Management Area, to 0.16 at Kellogg Tower.

Table 17. 2008 Ruffed Grouse Drumming Count Results, Huron-Manistee National Forest.

Route	Huron Forest		Manistee Forest					Overall
	Buhl	N. Black River	Grant Twp	Kellogg Tower	Marilla	Pine River	Wagon Wheel	
Drums Heard	67	47	13	8	81	27	25	268
Stops	48	53	60	51	60	51	36	359
Drums / Stop	1.40	0.89	0.22	0.16	1.35	0.53	0.69	0.75

Variations in numbers of grouse drums heard, between areas and years, may be due to the well known “ten-year cycle” in ruffed grouse numbers—oscillations are seen in Figure 4 of drumming counts on Cadillac-Manistee Ranger District: (no counts were taken in 2003).

Figure 4. Ruffed Grouse Drumming Counts, Cadillac-Manistee Ranger District.



Only two of seven American Woodcock singing-count routes within Proclamation boundaries were run on the Forests in 2008. Michigan DNR was unsuccessful in recruiting surveyors for three additional routes. Only one woodcock “peent” call was heard on Forest routes. We are unable to evaluate woodcock populations, or effects upon them of our management, from this effort, limited by funding for staffing to monitor.

Conclusions

Existing information suggests that most forest vegetation type acres are consistent with the projections in the Forest Plan. Less early successional habitat is being managed for Management Indicator Species, while the amount of late successional habitat for Management Indicator Species is increasing proportionally. Jack pine type is approximately 20,000 acres less than in 1986 and projected for the Year 2035. Forest data and information on jack pine type indicate a shift to short-lived oak.

Acreage of annual compartment exams needs to be increased to collect vegetation data to continuously upgrade information and the database. The Forests need to make steady improvements in gathering better vegetation information and improving databases.

Section 2 – Attainment of Forest Plan Goals and Implementation of Standards & Guidelines and Desired Future Conditions

Fisheries Management - Implementation of Standards & Guidelines & Forest Plan Goals

What standards and guidelines or objectives are not being met?

Forest Plan Standard

The following reviews the standard, *Forest management activities will not degrade long-term stream water quality below State standards.*

The Michigan Department of Environmental Quality (DEQ) Surface Water Assessment Section develops standards for the protection of water quality and monitors water, sediments and aquatic life to ensure the viability of our aquatic ecosystems, that water quality standards are being met, and that surface waters meet designated uses.

The DEQ conducts surface water assessments on a statewide basis (by watershed) on a five-year schedule using the Great lakes Environmental Assessment "Procedure 51" (Michigan Department of Environmental Quality Water Bureau 2005). The focus is on water quality, fish, and macro-invertebrate populations. The Au Sable River watershed was sampled in 2007 and a report will be forthcoming in 2009. No watersheds on the Huron-Manistee National Forest were part of the 2008 five-year sampling rotation. However, the Manistee River and Big Sable River watersheds, two systems on the Manistee National Forests, are scheduled for their respective periodic assessments in 2009.

Conclusion

No data from the 2007 Au Sable River watershed surface water quality periodic assessment is available at this time, and as stated above, no watersheds on the Huron-Manistee National Forests were part of the 2008 sampling.

Forest Plan Goal

The following reviews the forest plan goal, *Manage oligotrophic lakes with 100 percent of National Forest ownership so as not to change the trophic status; allow no more than a 10-percent decline in trophic status in other oligotrophic lakes and lakes with a mesotrophic status; lakes with a eutrophic status will maintain fishable and swimmable waters.*

There is not a well-documented cause and effect relationship from Forest Service land management actions and changes in fish populations in lakes on the National Forests. Thus, a MIH approach will be employed for warmwater lakes (the vast majority of the lakes on the National Forests) to monitor the health of these lentic ecosystems.

Warmwater lakes MIH – the trophic status of the lake will be maintained. It is proposed to use the trophic status guidelines listed under 2500 Watershed – Water Quality to serve as an indicator for maintaining the habitat quality for warmwater mesotrophic and eutrophic lakes. These are:

- Mesotrophic lakes - No more than a 10 % decline in the Carlson trophic state index will be permitted for all lakes with National Forest ownership.
- Eutrophic lakes with National Forest ownership will meet “fishable and swimmable” criteria contained in the Clean Water Act.

Lake water quality is a continuum progressing from very good to very poor conditions. A more precise method of describing the productivity of a lake is to use a numerical index, which can be calculated directly from water quality data. A variety of indexes are available with Carlson’s (1977) *Trophic State Index*, or TSI, being the most widely used.

As with streams, representative lakes are being sampled. Ideally, these lakes have 100 percent National Forest ownership of the shoreline and be located in watersheds with predominantly National Forest ownership (again, to reduce the variation in sources that could contribute to any changes in the trophic status). The monitoring of these lakes is part of an ongoing statewide water resources monitoring being jointly conducted by the Michigan Department of Environmental Quality and United States Geological Survey. The U.S. Forest Service began collaborating with this effort in 2004 so that more lakes from the Huron-Manistee National Forest could be sampled and with greater frequency. This ongoing statewide lake water quality-monitoring program is summarized at the following websites: (1) USGS <http://mi.water.usgs.gov/progproj.php>; and, (2) MDEQ http://www.michigan.gov/deq/0,1607,7-135-3313_3686_3731-195534--_00.html.

Tables 18 and 19 depict the lakes on the Huron-Manistee National Forests that are incorporated into this overall statewide monitoring program.

Table 18. Lakes on the Huron National Forest used for Management Indicator Habitat through the Michigan Department of Environmental Quality and United States Geological Survey (USGS) Statewide Water Resource Monitoring Program.

Lake	Location		
	National Forest	Watershed	County
Island Lake	Huron		
Loon Lake	Huron	Au Sable River	Oscoda
Little Au Sable Lake	Huron		
Sand Lake	Huron		Iosco
Mack Lake	Huron	Au Sable River	Oscoda
Sprinkler Lake	Huron		
Wagner Lake	Huron		
Jewell Lake	Huron		

Table 19. Lakes on the Manistee National Forest used for Management Indicator Habitat through the Michigan Department of Environmental Quality and United States Geological Survey (USGS) Statewide Water Resource Monitoring Program.

Lake	Location		
	National Forest	Watershed	County
Amaung Lake	Manistee	Pere Marquette	Newaygo
Benton Lake	Manistee		Newaygo
Hoags Lake	Manistee		Manistee
Nichols Lake	Manistee		Newaygo
Round Lake	Manistee		
Twinwood Lake	Manistee		Newaygo
Pine Lake	Manistee	Manistee River	Manistee
Olga Lake	Manistee	Pine River	Osceola
Sand Lake	Manistee		Manistee

In addition to the joint MDEQ – USGS statewide lake water quality monitoring, the MDEQ also coordinates statewide citizen-based monitoring as part of their lake water quality assessment (LWCA) program. This program has been ongoing since the late 1990s and reports are issued annually (Michigan Department of Environmental Quality and Michigan Lakes and Streams Association 1998-2007). Four lakes on the Huron-Manistee National Forests with some National Forest ownership are part of this program: Harper Lake, Bills Lakes 1 and 2, and Jewell Lake.

None of the above lakes were sampled through the joint DEQ – USGS statewide sampling program in 2008. However, data collected as part of this program from 2001-2004 are summarized in Table 20 and serve as the baseline for Forest Plan

monitoring purposes. Overall, the majority of the selected lakes are oligotrophic in nature with the remainder being mesotrophic.

The results of the ten-year LWCA sampling are summarized in Table 21 and Figure 5. The trophic status of the four lakes included in this statewide monitoring program has remained relatively unchanged and is in the “mesotrophic” or moderately productive range.

Table 20. Baseline Water Quality for Selected Lakes on the Huron-Manistee National Forests as Expressed by the Carlson Trophic Index.

Lake	National Forest	Watershed	County	USGS Site Number ²	Year	Secchi (meters)	Carlson's TI ³	Chlorophyll a (ug/l)	Carlson's TI ³ chloro a	TI Average	Trophic Status ⁴
Island Lake	Huron	Au Sable	Oscoda	443029084084001	2004	4.00	40.023	1.25	32.789	36.406	Oligotrophic
Loon Lake	Huron	Au Sable	Oscoda	443104084080601	2004	4.50	38.326	1.10	31.535	34.931	Oligotrophic
Little Au Sable Lake	Huron	Au Sable	Ogemaw	442627083553302	2004	3.90	40.388	1.50	34.578	37.483	Oligotrophic
Sand Lake	Huron	Au Gres-Rifle	Iosco	441938083403505	2001, 2004	2.70	45.687	---	---	45.687	Mesotrophic
Mack Lake	Huron	Au Sable	Oscoda	443439084041203	2003	---	---	3.25	42.163	42.163	Mesotrophic
Sprinkler Lake	Huron	Au Sable	Alcona	443606083362701	2004	4.65	37.854	1.35	33.544	35.699	Oligotrophic
Wagner Lake	Huron	Au Sable	Oscoda	443309084090001	2004	3.30	42.796	1.05	31.079	36.937	Oligotrophic
Jewell Lake	Huron	Au Sable	Alcona	444045083363801	2002, 2003	3.10	43.696	2.65	40.160	41.928	Mesotrophic
Amaung Lake	Manistee	Pere Marquette	Newaygo	434610085530101	2003	6.45	33.139	1.75	36.366	34.752	Oligotrophic
Benton Lake	Manistee	White	Newaygo	434014085532301	2003	2.70	45.687	1.80	36.090	40.889	Mesotrophic
Hoags Lake	Manistee	Pere Marquette	Mason	440849086114001	2003	3.05	36.160	3.80	36.366	36.263	Oligotrophic
Nichols Lake	Manistee	White	Newaygo	434344085543001	2003	5.23	43.931	1.80	43.696	43.814	Mesotrophic
Round Lake	Manistee	Muskegon River	Mecosta	433727085183005	2006	2.55	46.511	---	---	46.511	Mesotrophic
Twinwood Lake	Manistee	Muskegon	Newaygo	432824085455901	2003	2.85	41.743	8.35	48.339	45.041	Mesotrophic
Pine Lake	Manistee	Manistee	Manistee	441150086001701	2004	3.55	44.908	6.10	51.419	48.164	Mesotrophic
Sand Lake	Manistee	Manistee	Manistee	440946085562601	2004	6.20	33.708	1.10	31.535	32.622	Oligotrophic

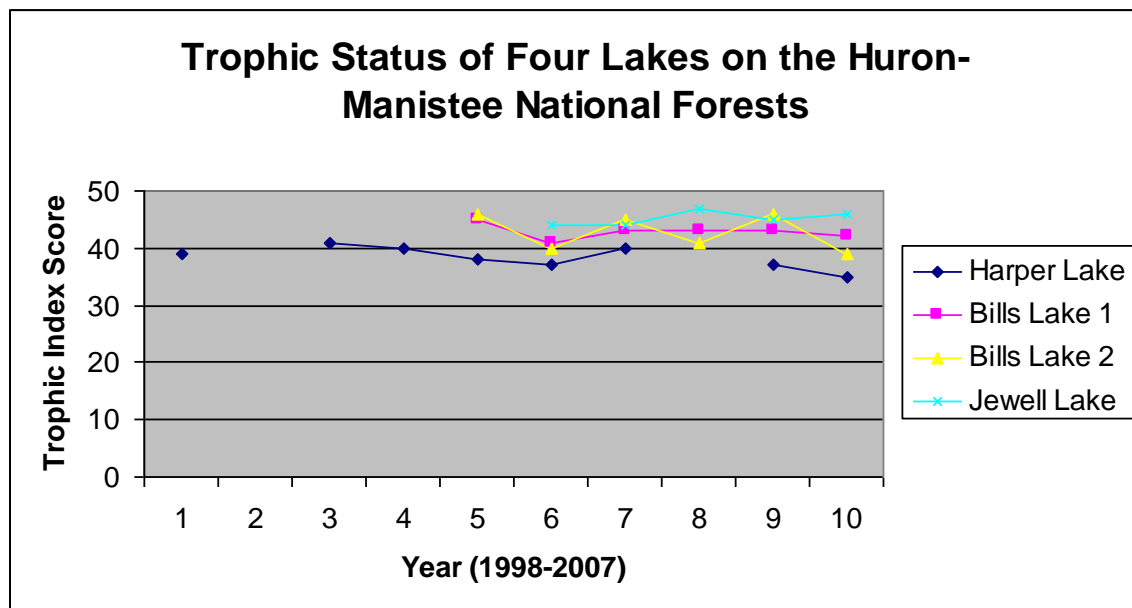
¹ Based on USGS-Michigan DEQ Joint Statewide Water Quality Monitoring Program² Unique code that can be used to access data at National Water Information Web Site (<http://nwis.waterdata.usgs.gov/usa/nwis/qwdata>)³ TI = Trophic Index, a measure of the nutrient level of lakes as developed by Carlson (1977)⁴ Trophic Index values < 40 = Oligotrophic, 40-50 = Mesotrophic, > 50 = Eutrophic (very productive) trophic states

Table 21. Cooperative Lakes Monitoring Program – Trophic Status of Lakes on Huron-Manistee National Forests (Michigan Department of Environmental Quality Annual Summary Reports) ¹

Year	Harper Lake (Lake Co.; Manistee NF)	Bills Lake 1 (Newaygo Co.; Manistee NF)	Bills Lake 2 (Newaygo Co.; Manistee NF)	Jewell (Alcona Co.; Huron NF)
1998	39			
1999	41			
2000	40			
2001	38	45	46	
2002	37	41	40	44
2003	40	43	45	44
2004		43	41	47
2005	37	43	46	45
2006	35	42	39	46
2007	35	46	41	

¹ Trophic status based on calculated Carlson's trophic status index (TSI) as derived from secchi disk reading measurements (Carlson's TSI Equation $TSI_{SD} = 60 - 33.2 \log_{10} SD$ where SD = secchi disk reading in meters).

Figure 5. Lake Trophic Status, Four Lakes on the Huron-Manistee National Forests.



Forest Plan Guideline

The following reviews the forest plan guideline: Natural, in-stream or added wood—trees, shall be left undisturbed unless it constitutes a navigational hazard. If watercraft cannot go over, under, or around wood, it constitutes a navigational hazard and may be cut only to the extent necessary for navigation.

Historical records and photographs suggest that large wood in streams played an important role in the structure and function of aquatic ecosystems of the watersheds of the Forests. This wood plays an important role in channel morphology, being one of the channel-forming agents. It provides habitat diversity, cover for fish, habitat for invertebrates, reptiles and other components of the aquatic food chain. Wood also adds nutrients to the aquatic system and protects streambanks during high flow events. Current-day levels of large wood in aquatic ecosystems on the Huron-Manistee National Forests are much lower due to: (1) historic, wholesale removal to facilitate log transport (log drives); (2) cutting of the pre-Euro-American forest (removal of the source for future recruitment); (3) reduced levels of recruitment from second growth riparian forests and (4) cutting to facilitate passage of recreational watercraft.

One of the challenges in river maintenance and riparian corridor management is how we look at large wood and logjams in our rivers. In the recent past, logjams were thought to be a significant problem and were completely removed from stream channels. As stated above, logjams help reduce erosion, provide habitat for fish and wildlife and are an important part of the natural processes of a river system. Now it is recommended to leave most logjams in place. Large wood management is the process of determining what to about wood in the river—move, remove or add, and how best to do that work.



A significant flood event occurred in the Pine River watershed in June, 2008 that led to a great deal of large wood recruitment to the river system. Many of these downed trees formed navigation hazards. The Forest Service worked with the liveries to do minimal clearing, protecting aquatic habitat while providing safe watercraft passage whereby this National Scenic River was navigable within a week's time after the storm event.

Conclusions

Implementation of Forest Plan guidelines for large wood clearing in navigable streams has improved since the Forest Service and the primary river users (liveries and guides) began cooperatively clearing those logjams that are true navigation hazards two years ago. Continuation of this effort should mitigate the potential cumulative effects of long-term clearing.

Viability Populations of Existing Native and Desired Non-native Fish Species

Are minimum viable populations of appropriate native and desirable nonnative species being maintained within the planning area?

Management of streams focused on improving habitat for resident and potomodromous coldwater species, including MIS brook trout and mottled sculpin, as well as the sensitive species found on the Huron-Manistee National Forests (lake sturgeon, greater redhorse, channel darter, and the snuffbox and creek heelsplitter mussels). A total of 35 miles of stream habitat were improved. Stream habitat work will include sediment basin maintenance, streambank stabilization, instream cover structure construction and repair, improvement of road-stream crossings, and large wood enhancement.



Cedar Creek habitat improvement work

Partnerships played a vital role in the implementation of our fisheries and watershed restoration programs. Many of the stream restoration projects were part of overall watershed restoration program partnerships. Important partnership projects include:

- Mena Creek cover enhancement (see photo above).
- Little Manistee River cover enhancement (Little Manistee River Watershed Conservation Council, Conservation Resource Alliance)
- East Branch Pine River -220th Avenue crossing upgrade (see before-after photographs below)
- Au Sable River Claybanks erosion site stabilization completion (Huron Pines RC&D, Trout Unlimited)
- Pere Marquette and Little Manistee River sediment basin maintenance (Pere Marquette Watershed Council, Little Manistee River Watershed Conservation Council).



East Branch Pine River crossing – before upgrade



East Branch Pine River – after upgrade

In addition to management of stream systems within watersheds, some management activities on lakes within the National Forests took place in 2008. One such activity took place on Jewell Lake on the Huron National Forest. The fish population sampling was done to assess the status of the northern pike population, an important component of the Jewell Lake fishery, in relation to habitat management (spawning marsh operation).



Bob Stuber, Fisheries Biologist, (left photo) and Chuck Andrina, District Ranger, sampling fish populations in Jewell Lake

Partner contributions to all 2008 stream and watershed improvement projects on the Huron-Manistee National Forests were approximately \$910,000.

Conclusions

Site-specific monitoring of representative habitat improvement is ongoing. The Michigan Department of Natural Resources is evaluating the effectiveness of the Little Manistee River sediment basin as part of a larger, statewide study (Wills 2007). Mean channel depth increased both upstream and downstream of the

sediment trap after three years. Gravel substrates also increased upstream and downstream of the sediment trap.

Monitoring of the fish population in Fairchild Creek, a tributary of the Pine River system was also done in 2007-2008. Sampling was done above and below the sediment basin that is maintained on the stream. Trout numbers and average size were greater downstream of the sediment basin than upstream.

Long-term monitoring of the salmonid population in the Pere Marquette River was conducted by the Michigan Department of Natural Resources. This monitoring is in part to evaluate the effects of ongoing watershed restoration activities (and part of the DNR's long-term Michigan streams study; Wills 2007b). The 2008 standing crop estimate for resident brown trout at the Pere Marquette River index station was estimated to be 112 lb/acre, the highest number recorded since 1982 (personal communication; Mark Tonello, MDNR Fisheries Biologist).

The Jewell Lake adult northern pike population is not large enough to sustain a trap-and-transfer operation into the adjacent spawning marsh at this time. The Michigan Department of Natural Resources will stock pike fingerlings over the next 3-5 years to build up the population. In the interim, the Forest Service will work with local interests to do maintenance work on the adjacent spawning marsh (brushing, re-construction of the outlet structure and return channel).

Large Wood Stream Restoration

Is the desired condition for large wood being met?

Table 22. In-stream Large Wood Objectives, 2006 Forest Plan.

Stream Order	Number of Large Wood Structures per 300 feet of Stream
1-2	6-9 (108-160 per mile)
3-4	3-6 (54-108 per mile)

No actual counts of large wood placed in previous years as part of large-scale restoration projects were done in the Au Sable or Manistee Rivers in 2008 due to budgetary and time constraints.

Conclusions

Actual counts and monitoring of movement of placed large trees is planned for 2009 for both of these rivers.

Wildlife and Vegetation Management - Minimum Wildlife Populations

Are minimum viable populations of appropriate native and desirable non-native species being maintained within the planning area?

In 2008, the Forests accomplished 1,030 acres of habitat management, for white-tailed deer, wild turkey, ruffed grouse, woodcock, butterflies, eastern bluebird, upland sandpiper and various other landbirds that benefited from these 30 projects. Early successional vegetation was managed (966 acres), prairies and grasslands restored (489 acres), and fire-dependent ecosystems were managed by prescribed fire.

The Forests restored over 33.5 miles of streams (10 miles anadromous, over 23.25 miles inland coldwater) with partner support.

Partner contributions were vital to Forest accomplishments for fisheries, wildlife and Endangered, Threatened and Sensitive species in 2008. Partner dollars (\$1,045,437) and in-kind contributions (\$151,732) more than doubled the work the Forests were budgeted to perform, and thus vastly increased our accomplishments. Conservation partner Consumers Energy, for instance, has several projects within Forest boundaries -- on 8 cooperative projects it monitors and maintains 9 Osprey nesting platforms, 197 Eastern Bluebird boxes, 15 American Kestrel boxes, 135 Wood Duck boxes, and Purple Martin nest boxes. Consumer's Energy is also involved in managing and monitoring Common Loons, Trumpeter Swans, Bald Eagles, Indiana Bat and Karner Blue Butterfly, as well.

Conclusions

Given the variety of habitats, plant communities and forest conditions managed for on the Forests, management to maintain viable populations of existing native and desired non-native species is assured. Partnership projects extend Forest resources, and make more conservation projects possible, to effectively address a wide variety of species and their habitats.

Table 23. Partnership Report for All Programs, Eastern Region, Huron-Manistee National Forests for Fiscal Year 2008.

Partner Name	Number of Projects
Arbor Day Foundation	1
Bahamas National Trust	1
Bitely Better Conservation Club	1
Boy Scouts of America	1
Burdell Township - Osceola County, Michigan	1
Conservation Resource Alliance	10
Consumers Energy	4
Dave Smith	2
Elk Township - Lake County, Michigan	1
Environment Canada	1
Federated Garden Clubs of Michigan	3
Federation of Flyfishers	1
Ferris State University	1
Fremont Area Foundation	2
Grand Valley State University	1
Great Lakes Commission	1
Huron-Pines Resources Conservation and Development Council	3
Lake County Road Commission	2
Lake Mitchell Improvement Board	1
Land Conservancy of West Michigan	1
Larry Copley	1
Lions Club	2
Little Manistee Watershed Conservation Council	5
Little River Band of Ottawa Indians	5
Michigan Conservation Foundation	2
Michigan Department of Natural Resources	13
Michigan DNR Fisheries Division	10
Michigan Entomological Society	1
Michigan Federated Garden Clubs	1
Michigan Loon Preservation Association	1
Michigan Natural Features Inventory	1
Michigan River Guides Association	1
Michigan State University	1
Muskegon Conservation District	1
Muskegon River Watershed Assembly	1
National Audubon Society - Michigan	1
National Forest Foundation	1
National Wild Turkey Federation - Michigan	10
National Wild Turkey Federation - Pere Marquette	1
National Wild Turkey Federation - White River Longbeards Chapter	1
Natural Resource Conservation Service	2
Nichols Lake Association	1
Nixon family	1
Nowhere Duck Club	1
Osceola County Road Commission	1
Pere Marquette Watershed Council, Inc.	3
Pheasants Forever	2

Pine River Association	3
Red Cedar Flyfishers	1
Ruffed Grouse Society	1
Sergi Postupalsky	1
The Nature Conservancy - Michigan	2
Trout Unlimited - Challenge Chapter	1
Trout Unlimited - Paul Young Chapter	1
Trout Unlimited - Pine River	1
University of Michigan	1
University of Toronto	1
USDI Fish and Wildlife Service	1
USDI Fish and Wildlife Service - East Lansing	2
USDI Fish and Wildlife Service - Green Bay Fishery Resource Office	2
USDI Fish and Wildlife Service - Ludington Biological Station	1
USDI Fish and Wildlife Service - Seney National Wildlife Refuge	1
USDI USGS Patuxent Wildlife Research Center	1
Volunteers of the Mio Ranger District	1
Wellston Boosters Association	2
Wittenberg University	4
Total Number of Partners:	138

Wildlife and Vegetation Management – Aspen, Early Successional Habitat

How many acres of early successional habitat in riparian areas occur on each Forest? Does this level of habitat provide adequate species viability?

Early-successional aspen/birch is found on a variety of sites across the Forest, in areas with different productivity levels. This vegetative type ranges from stands composed entirely of aspen to stands that are predominately aspen with mixtures of red maple and/or balsam fir on moister sites, with oak and/or pine on drier sites, or with northern hardwood on high productivity sites. Aspen is a short-lived species, but can live to over 100 years of age. Commercial rotation age in the Forest Plan is 50 to 60. In young stages, stand structure is usually dense shrub. Sapling stands thin naturally, providing numerous dead stems. After about age 25, aspen trees produce flower buds that are relished by ruffed grouse. Aspen provides an abundance of forage and habitat for a variety of early successional species.

The Biological Evaluation (BE) for the 2006 Forest Land & Resource Management Plan (LRMP) estimates there are 35,500 acres in “Streamside Management Zones” (SMZ) and 59,500 acres of more inclusive “riparian” habitat within the Forest (BE, pp. 147, 151, 155). Management Area 8.1, Wild and Scenic Rivers, encompasses 147.5 miles of the Pere Marquette, Pine, Au Sable, and Manistee Rivers and Bear Creek, with 34,200 acres in the “river corridor” (LRMP III-8.1 pp.2-3). Some 158 miles of Study Wild and Scenic Rivers (White, Little Manistee, Muskegon, Little Muskegon Rivers, and Pine River Addition) in Management Area 9.2 (LRMP III-9.2 p.2) would include about 36,600 acres within their river corridors, for a total of 70,800 acres in these National and Candidate Wild and Scenic River corridors. Of these, 17,100 ac in MA 8.1 and 7,600 ac in MA 9.2 (total 24,700 ac, 35%) are considered Old Growth. The BE estimated about 17% (6,100 ac) of SMZs are in aspen/birch, lowland brush, and brush/shrub early successional vegetation types. If this holds true for “riparian” habitat, there were about 10,200 ac of early successional habitat in those areas. If true for “river corridors”, early successional habitat would cover about 12,200 acres of the Forest in those corridors.

The BE estimated that about 5,000 acres of early successional habitat are necessary to meet the stated needs of riparian-dependent sensitive species (e.g. Indiana bat, eastern massasauga rattlesnake, red-shouldered hawk, Kirtland’s snake, cerulean warbler, northern waterthrush), golden-winged warbler, ruffed grouse and woodcock. If about 2% of early successional habitat is lost annually to succession, about 120, 200, or 240 acres succeed to later successional seral stages each year. These losses may be partially offset by natural disturbance processes,

which are unquantifiable. Alternatively, treatment (typically clearcutting) in these areas can restore early successional habitat for another 40-60 years. The bottom line is that even in the most restrictive SMZ, it would take over 9 years with no habitat management to reduce 6,100 acres of early successional habitat below 5,000 acres needed for sensitive species viability; in “riparian” or “river corridor” areas, it would take 25-29 years.

Forest databases indicate that over 43,000 acres of aspen stands are mature. Recently, the Forest has treated approximately three-quarters of the aspen early successional habitat projected in the Forest Plan, none of it in riparian areas. Forest staffs conduct some ruffed grouse and American woodcock surveys each year, limited by staff time and funding. We are unable to evaluate specific effects of vegetation management on ruffed grouse, woodcock, or golden-winged warbler, based on such fragmentary data.

Table 24. Non-riparian Early Successional Habitats, Created FY 2008.

2008 Early Successional Treatments, acres				
District	Clearcut	Stand Clearcut	Stand Clearcut w/ Residual	Subtotal
Baldwin - White Cloud		133		133
Cadillac - Manistee	40	174	24	238
Huron Shores		600	239	839
Mio		658		658
Total	40	1565	263	1868

Evaluation and Conclusions

The Forests anticipate future creation of early successional habitat in riparian areas, primarily for eastern massasauga rattlesnake, golden-winged warblers, and American woodcock. However, the Forests are not meeting Forest Plan projections for aspen/ early successional habitat and commodity production. Long-term sustainability of aspen at the current Forest Plan level is in question. Providing less habitat than projected in the Forest Plan may contribute to the decline of sensitive species, grouse and woodcock populations, and impacts on other forest vegetation types from deer browsing, due to lack of available high quality browse. Interested groups and publics are concerned about declining aspen habitat and outputs (grouse, pulpwood, etc.) the Forest provides. Partners such as Ruffed Grouse Society, National Wild Turkey Federation, and Wildlife Management Institute have and may contribute to non-commercial treatments to achieve these goals, if necessary.

The 2006 Forest Plan projection for aspen (Year 2036) is about 126,000 acres, assuming an aspen harvest of 24,000 acres per decade. Even at that level of harvest, this still results in a reduction of about 35,000 aspen acres. However, if current harvest levels continue, many more acres of early successional habitat would convert to other forest vegetation types, resulting in a long-term reduction of aspen type on the Forests. As market forces and budgets allow, the Forests should increase aspen harvest to provide early successional habitat and aspen commodity production. The public should anticipate accomplishment levels less than the estimated 2,410 acres yearly in the Forest Plan for the near future. After meeting goals for Endangered and Threatened species habitat (especially Kirtland's warbler and Karner blue butterfly), aspen/early successional habitat should be the next highest vegetation management priority for the Forest.

Population Trends of Regional Forester Sensitive Species (RFSS) – Fisheries

To what extent are Forest Service management activities directed toward population viability for native and desired non-native species?

Monitoring will determine the population and habitat trends in RFSS over time. Population and habitat data sources include the Michigan Department of Natural Resources, Fish & Wildlife Service, Tribes, Michigan Natural Features Inventory, and Forest Service. Suitable habitat is explicitly defined for each species through the Species Viability Evaluation (SVE) process.

Lake Sturgeon

The Manistee River historically supported a large population of lake sturgeon. Because of habitat fragmentation (dams) and over-exploitation, this population has declined dramatically. This native population has historical and cultural significance to the Little River Band of Ottawa Indians. For 2008 lake sturgeon monitoring was a cooperative effort led by the Little River Band of Ottawa Indians Natural Resources Department. Other cooperators in the Manistee River lake sturgeon recovery efforts include the U.S. Fish and Wildlife Service, Michigan Department of Natural Resources, U.S. Forest Service, Conservation Resource Alliance, and various universities (Grand Valley State, Central Michigan, Michigan State, and Michigan Technological Universities).



Monitoring for lake sturgeon focused on assessments of larval sturgeon drift. In addition, the Little River Band operates a streamside rearing facility at Rainbow Bend Recreation Area on the Manistee River. Larval wild sturgeon are captured from the Manistee River and placed in the rearing facility. In the fall, these sturgeon are released back into the stream. In 2008, 20 lake sturgeon in the 6-8-inch range were released. It is believed that this lifestage (juvenile) is one of the most critical in the lake sturgeon life cycle. The streamside rearing unit allows for juveniles to reach a larger size more quickly than would be attained in the river alone, thus enhancing their chances for survival.

The Little River Band and Grand Valley State University also performed a diet analysis of juvenile brown and rainbow trout in the Manistee River to determine whether trout prey upon drifting larval sturgeon. Preliminary diet analysis indicated that no larval sturgeon were included in trout diets (Conte et al. 2008).

Evaluation and Conclusions

The lake sturgeon population in the Manistee River remains low but some natural reproduction and recruitment is occurring (Chiotti et al. 2008). This is somewhat encouraging, especially when viewed from a statewide perspective. Although lake sturgeons are still widely distributed across Michigan, it is apparent that lake sturgeon abundance is far below historical levels and that some populations have been extirpated from rivers that historically supported spawning. There is little evidence of natural reproduction from most existing populations (Baker 2006). Thus, the natural reproduction and recruitment on lake sturgeon in the Manistee River is a significant part of the overall restoration program.

Defining early life characteristics, habitat preference, and monitoring relative recruitment indices will aid cooperators in the continued restoration of the Manistee River sturgeon population. Identification of habitat and river retention time of reared juvenile sturgeon will aid in rehabilitation efforts (Mann et al. 2007).

Greater redhorse suckers are presumed to still be present in the Pere Marquette River system even though none were sampled in 2008 at the fish ladder. Ongoing monitoring at the weir will allow for a trend analysis over time.

Monitoring for sensitive mussel species (snuffbox, creek heelsplitter) needs to be undertaken in the future, adapting an approach developed by Dunn (2000).

Greater Redhorse

The greater redhorse sucker has been documented to occur in the Pere Marquette River. The U.S. Fish and Wildlife Service operates an electrical sea lamprey barrier with a fish ladder on this river in cooperation with the Michigan Department of Natural Resources. The fish ladder provides a unique opportunity to monitor fish passage.



U.S. Forest Service personnel sampled fish passage through the ladder for 13 days during the time period May 13 through June 18, 2008. A total of 571 redhorse suckers were passed through the fish-way ladder during this entire time period with the majority being golden and silver redhorse suckers. No greater redhorse suckers were encountered in 2008. However, four fish were identified as river redhorse sucker (*Moxostoma carinatum*), a State of Michigan “endangered” and Regional Forester’s sensitive species. River redhorse have not

been previously been documented to occur in the Pere Marquette River. Follow-up monitoring will occur in 2009 to determine if they are indeed present in the river system or were actually greater redhorse (the two species are physically similar).

Evaluation and Conclusions

Greater redhorse suckers are presumed to still be present in the Pere Marquette River system even though none were sampled in 2008 at the fish ladder. Ongoing monitoring at the weir will allow for a trend analysis over time.



Monitoring for sensitive mussel species, including snuffbox and creek heelsplitter needs to be undertaken in the future.

Population Trends of Regional Forester Sensitive Species (RFSS) — Northern Goshawk & Bald Eagle

To what extent are Forest Service management activities directed toward population viability for native and desired non-native species?

Of the 142 species tracked as Regional Forester Sensitive Species (RFSS), at least 90 have Species Viability Evaluations, Conservation Assessments, or Risk Evaluations completed. Additionally, Recovery or Management Plans have been prepared for all five Endangered or Threatened species and Critical Habitats on the Forests.

RFSS animals and plants are searched for in every botanical and wildlife survey of proposed projects. As a result of these dedicated studies and observations during routine fieldwork, we reported 207 new occurrences of 25 RFSS species (plus four others) to Michigan Natural Features Inventory in 2008.

Indiana Bat and Piping Plover are monitored as Endangered or Threatened species, reported elsewhere. Eastern Pipistrelle is monitored in conjunction with Indiana Bat. American Marten, Eastern Massasauga, and Wood Turtle are subjects of cooperative graduate studies on the Forests. Sergej Postupalsky and associates search the Manistee National Forest for Northern Goshawk each spring. In addition, Consumer's Energy and Little River Band of Ottawa Indians track Trumpeter Swans on project reservoirs on the Manistee and Au Sable Rivers where swans were released in 1997-1999 and 2002.

Northern Goshawk

Four breeding Northern Goshawk pairs (1 in Cadillac-Manistee District, 3 in Baldwin-White Cloud District), were located on Manistee National Forest by Sergei Postupalsky in 2008. Three of 16 previously- known nests and one new nest successfully fledged at least 6 young. In addition, 1 Red-shouldered Hawk nest was found on the Forests, in 8 historic and 2 new nest areas. That active nest produced no fledgling Red-shouldered Hawks this year, however.

Michigan's Northern Goshawk population appears to follow the 10-year cyclic fluctuations of snowshoe hare and ruffed grouse populations; the amplitude is



less pronounced in the Lower Peninsula than in the Upper Peninsula and in Canada. This may be due to a more diverse prey base available in southern parts of the goshawks' breeding range. Although breeding activity remains at a low level, most of the limited number of pairs, which attempt breeding, manage to raise young.

Evaluation and Conclusions

With little direct monitoring capability (allocated funds or positions), we have observed no significant changes in populations, status, or area occupied by RFSS in 2008. The proposed Western Great Lakes Northern Goshawk Inventory and Monitoring project could allow annual surveys to determine variations in goshawk presence at two to nine Primary Sampling Units across these Forests, depending on future funding.

Bald Eagle

The 256 active nests counted in the Northern Lower Peninsula in 2008 are a marked increase from 80 pairs, over 30 years ago. Of 89 historic territories in or near the Huron-Manistee National Forests, 58 were active in 2008, up from 15 in 1986. In 2008, the Forest produced 74 - 85 fledglings -- an average productivity of 1.28 – 1.47 fledglings per territory, Forest-wide.

The Northern States Bald Eagle Recovery Plan goal is to have 1,200 occupied breeding territories distributed over a minimum of 16 states within Fish and Wildlife Service Region 3. The Forests have met and surpassed the planned minimum goal of 1.0 fledglings produced per year from at least 20 territories. Because of these region-wide successes, the US Fish & Wildlife Service de-listed the bald eagle from its Threatened status in 2007. It will remain a Management Indicator Species, and RFSS, under the 2006 Forest Plan.

Habitat Improvement – Regional Forester Sensitive Species (RFSS)

Are management Standards and Guidelines being implemented for RFSS or their habitats?

In FY 2008, the Forests accomplished 486 acres of ETS habitat treated, managed, protected, improved or restored (including 425 acres for Kirtland's Warbler; and 60 acres for Karner Blue Butterfly, Dusted Skipper and Frosted Elfin), and 33,475 acres inventoried (including approximately 7,240 acres for Northern Goshawk, Red-shouldered Hawk, and Spruce Grouse; 3,800 acres for Dusted Skipper and Michigan Bog Grasshopper; 774 acres for Karner Blue Butterfly; 18,200 acres for Kirtland's Warbler; 450 acres for Black-backed Woodpecker; and 170 acres for Piping Plover). (Some acreages overlap, so sum of sub-totals exceed total acres inventoried.)

Sensitive plant species (false boneset, prairie smoke, and Goldie's woodfern) were planted in an approximately one acre savanna restoration site at Loda Lake National Wildflower Sanctuary. Habitat improvements also benefit a fourth RFSS plant, ternate grapefern. At another location, encroaching invasive reed canary grass and other competing vegetation was removed within herbivory exclosure cages surrounding two groups of RFSS purple milkweed, approximately 0.05 acre. Invasive St. Johnswort also was removed from 0.1 acre of RFSS prairie dropseed habitat.

Forty-three acres of spotted knapweed was pulled in Pitcher's thistle habitat and opening maintenance was conducted in a five-acre stand that contains Allegheny plum.

Habitat improvement by weeding occurred on a one-third acre site containing ternate grapefern, prairie smoke, Hill's thistle, silky aster, and Canadian milkvetch. Forked aster and goldseal were planted in two small patches totaling less than one-tenth acre.

Botanists are developing a management plan for a one-tenth acre of prairie smoke in Newaygo County. Conditions of another small area of prairie smoke in Lake County are being monitored and treatment plans are being developed to address the nearby infestation of cypress spurge, a non-native invasive plant. Conditions surrounding about 200 Allegheny plums are being monitored and NEPA analysis is being developed with the intent of reducing competing plant species.

Acres treated to benefit RFSS are recorded in the FACTS database upon accomplishment, and are reported in the Wildlife, Fish and Rare Plants report. Treatments include vegetative management to achieve or set the stage for

desired conditions, creation of structures (water holes, nest boxes, etc.) used by RFSS, and protective actions, including closures to human uses that interfere with RFSS use.

Conclusions

Management Standards and Guidelines, including those directed toward protecting RFSS, are routinely implemented and applied to management prescriptions in project design.

Endangered, Threatened, and Sensitive Species (ETS) Conservation Strategies

To what extent are established recovery or conservation strategies for species listed under the Endangered Species Act being implemented?

Site checks are conducted for compliance with Forest Plan Standards and Guidelines concerning Indiana Bat, Karner Blue Butterfly, Kirtland's Warbler, Piping Plover and its Critical Habitat, Pitcher's Thistle. For 2008, Bald Eagle is not included because of its delisting as an ETS by the Fish and Wildlife Service.



Table 25. Endangered, Threatened, and Sensitive Species (ETS) and Conservation Strategies.

ETS	Conservation Strategy
Indiana Bat	The Indiana Bat Recovery Plan (USFWS, 1983) and an updated agency (USFWS) draft plan (1999) guide management and monitoring.
Karner Blue Butterfly	The Karner Blue Butterfly Recovery Plan (USFWS, 2003) guides management and monitoring
Kirtland's Warbler	The Kirtland's Warbler Recovery Plan (USFWS, 1976, updated 1985), Strategy for Kirtland's Warbler Habitat Management in Michigan (Huber et al, 2001), and Kirtland's Warbler Census Protocol (Carlson & Huber 2005) guide management and monitoring. (See BO Monitoring Report for more detail).
Piping Plover	Critical Habitat for Piping Plovers (including 4.6 miles of Lake Michigan shoreline in Nordhouse Dunes Wilderness and Lake Michigan Recreation Area (LMRA) on the Huron-Manistee National Forests) was designated in May of 2001 (USFWS 2001). The current Recovery Plan for the Great Lakes Piping Plover, completed in September of 2003 (USFWS 2003) by the U.S. Fish and Wildlife Service, guides management and monitoring.
Pitcher's Thistle	A Draft Pitcher's Thistle Recovery Plan (USFWS, 1993) guides management and monitoring.

Indiana Bat

Dr. Allen Kurta of the Department of Biology at Eastern Michigan University and a team of graduate students inventoried bats using Tippy Dam (where Indiana Bats were found in 1994, 1999 and 2000) during the winter “hibernating” period in February 2008. This is a cooperative effort between Consumers Energy, Eastern Michigan University and the Forest Service. Planned mist-netting of bats using the Tippy Dam structure in August 2008 was cancelled, due to concerns about White-nose Syndrome and new USFWS handling guidelines that made sampling impractical.

Karner Blue Butterfly

Two Karner Blue Butterfly (KBB) Recovery Units (RUs) are identified on Manistee National Forest. The Muskegon RU includes the Otto and White River metapopulation areas, and Newaygo RU includes the Bigelow and Brohman metapopulation areas. Currently, we monitor 78 sub-populations: 40 in Otto, 21 in White River, 4 in Brohman, 3 in Bigelow, and 10 other scattered subpopulations.



Surveyed areas were either treated between 1992 and 2003 to restore oak savanna or pine barrens habitats, or represent untreated reference sites. During first flight (May 21 to June 8), Baldwin-White Cloud Ranger District personnel conducted inventory surveys on 128 acres to identify new KBB subpopulations in the Otto, White River, Brohman, and Bigelow metapopulation areas. During second flight (July 8 to 27), District surveyors estimated KBB abundance via Distance sampling surveys or modified Pollard-Yates walks and conducted habitat surveys within all 78 known KBB subpopulations covering 580 acres. To examine the influence of weather on KBB over-wintering survivorship, the District collected hourly temperature and weekly snow depth data within 20 selected subpopulations. These data will be analyzed to evaluate the status of KBB metapopulation areas within the Manistee National Forest; to develop a habitat suitability model for KBB within the Manistee National Forest; to identify high priority areas to target management; and to evaluate the effectiveness of different treatments for restoring savanna/barrens and KBB habitat.

The District also conducted habitat surveys on an additional 104 acres, to evaluate mechanical treatments designed to restore KBB habitat.

Kirtland's Warbler

Counting singing male Kirtland Warblers during a short period in early June is a cooperative venture of the Michigan Department of Natural Resources, US Forest Service, US Fish and Wildlife Service, Michigan Department of Military Affairs, and various other private citizens and organizations. It is directed by the Kirtland's Warbler Recovery Team. The Recovery Plan directs cooperating agencies to "monitor breeding populations...in order to evaluate responses to management practices and environmental changes."

The Kirtland's Warbler spring census is a tool that enables managers to:

- Evaluate the warbler population relative to the recovery objective (1000 singing males for five consecutive years), to consider the need for down-listing or de-listing.
- Determine the presence or absence of individuals in areas for protection purposes.
- Evaluate habitat management activities (for example, plantation vs. trench and seed).
- Detect differences in occupancy, duration of use, and density of singing males between Management Areas.
- Build public confidence in endangered species management.
- Provide data for research.

The census consists of traversing occupiable habitat early in the morning, mapping the location of singing male Kirtland's warblers, during June 6th through the 5th. Census counts are conducted between local sunrise and 11:00 a.m. EDT. Surveyors traverse blocks of habitat in parallel lines, no more than 1/4 mile apart, using compass or GPS. They stop and listen for singing males every 10 chains (1/8 mile or 200 meters) for 1 to 5 minutes, and triangulate the locations of singing males by compass directions on route maps. The census is conducted with as little disturbance to the warblers as possible.

Piping Plover

Historically, Piping Plovers nested in 20 Michigan counties along the Great Lakes. Since 1986, nests have been found at over 30 breeding sites in both the Upper and Lower Peninsulas (US Fish and Wildlife Service 2002).

Monitoring efforts on Huron-Manistee National Forests began in 2001 in response to designation of Critical Habitat. Currently, a draft monitoring protocol is being reviewed, based loosely on local protocols in use on the Hiawatha National Forest. Monitoring consists of walking an informal transect in primary (beaches up to the first dune formation) and secondary potential nesting areas (between the first dune and the forest).

Bald Eagle

The Forests coordinate annual aerial surveys of bald eagle nesting pairs and nest territories with MI DNR. Following guidance in the Bald Eagle Management Plan, Huron-Manistee National Forests (2006) and the Northern States Bald Eagle Recovery Plan (1983), some 89 historically-known nest locations were surveyed by air and/or ground.

Evaluation and Conclusions

Conservation Strategies and Recovery Plans are in place and followed for the four Endangered and Threatened species and Critical Habitat found on the Forests. Management prescriptions and actions, including road and area closures to protect Endangered or Threatened species, comply with those Strategies and Plans, and are monitored for compliance. Bald Eagle, Indiana Bat, and Kirtland's Warbler monitoring strategies seem to be working well. Karner Blue Butterfly monitoring strategy is evolving, to better track populations.

Seasonal Piping Plover monitoring personnel (temporaries, seasonals, interns, volunteers, etc.) should be trained and oriented to critical habitat no later than April 15 if possible, to allow daily monitoring if a nest is discovered during the field season. In addition to primary habitat areas, occasional monitoring of secondary habitat and potential nesting areas behind fore-dunes should continue, although lack of suitable water sources in these areas makes these areas to support nesting birds.

Non-Native Invasive Species (NNIS), especially Lombardy poplar and spotted knapweed have become established along the shoreline, in Pitcher's Thistle habitat. Lombardy poplar may inhibit dune processes by stabilizing them, and sprouts prolifically. Spotted knapweed has spread to previously-unaffected

habitat, and competes adversely with Pitcher's Thistle. Other continuing threats that require monitoring include trampling by humans, browsing by rabbits and deer, and damage by insects.

Endangered, Threatened, and Sensitive Wildlife Species – Population Trends

What are the population trends for Piping Plover, Piping Plover critical habitat, Pitcher's Thistle, Kirtland's Warbler, Karner Blue Butterfly, and Indiana Bat.

Karner Blue Butterfly

Baldwin-White Cloud Ranger District personnel conducted inventory surveys on 128 acres to identify new KBB subpopulations in the Otto, White River, Brohman, and Bigelow metapopulation areas. New KBB subpopulations also were identified by coordinating monitoring activities with the Michigan Department of Natural Resources and Grand Valley State University. As a result, 27 new Karner blue butterfly subpopulations were identified and monitored within the District. During second flight (July 8 to 27), District personnel, in cooperation with Michigan Department of Natural Resources, estimated KBB abundance and assessed habitat conditions within 78 KBB subpopulations covering 580 acres. Distance sampling surveys or modified Pollard-Yates walks were conducted at least twice for each subpopulation to estimate KBB abundance. Habitat surveys were conducted within all 78 subpopulations, while hourly temperature and weekly snow depth data were collected within 20 selected subpopulations.

Since 1992, handcutting, prescribed burns, mowing, scarification, and seeding have been used to manage 712 acres of occupied and 796 acres of unoccupied Karner blue butterfly habitat within the Muskegon and Newaygo RUs. In addition, the Baldwin-White Cloud Ranger District also closed and obliterated 2 miles of road, to protect formerly-occupied and potential KBB habitat in the White River metapopulation area. The road closure has reduced adverse impacts from recreational uses within 400 acres of KBB habitat.

Baldwin-White Cloud Ranger District personnel surveyed 234 more acres for KBB in 2008 than in 2007. This increase in effort was possible because of the Forest's KBB Monitoring Outreach Program, which encourages citizens to actively participate in KBB surveys. In 2008, volunteers from numerous private and public partner organizations such as Michigan State University, Ferris State University, Grand Valley State University, Michigan Entomological Society, Michigan Federated Garden Clubs, Michigan's Conservation Districts, Land Conservancy of West Michigan, and Little River Band of Ottawa Indians provided 158 volunteer days (~\$20,000 in contributed volunteer time).

Kirtland's Warbler

The Kirtland's warbler census has been conducted annually since the 1971, making 2008 the 39th consecutive year the census has been conducted. The 1971 census showed that Kirtland's warbler population had declined 60% from the 1961 census, to only 201 singing males. The census is conducted in all areas believed to be occupiable Kirtland's warbler habitat. To cover the estimated 17,200 acres on the Huron National Forest and 1,400 acres on the Au Sable State Forest, employees from the Forest Service, Fish and Wildlife Service, and MDNR are needed. Most importantly, 20 volunteers provided 300 hours (approximately \$9,000 value) of time and expertise critical to accomplishing this task.

In 2008, 1,792 singing males were counted in Michigan, the highest count ever recorded (Figure 6, below). This is the eighth time since 2001 that the number of singing males counted on a census exceeded 1000. The 2008 count was 5.6 percent higher than the 1697 singing males counted in 2007.

Kirtland's Warbler Census Results
Huron NF & Michigan

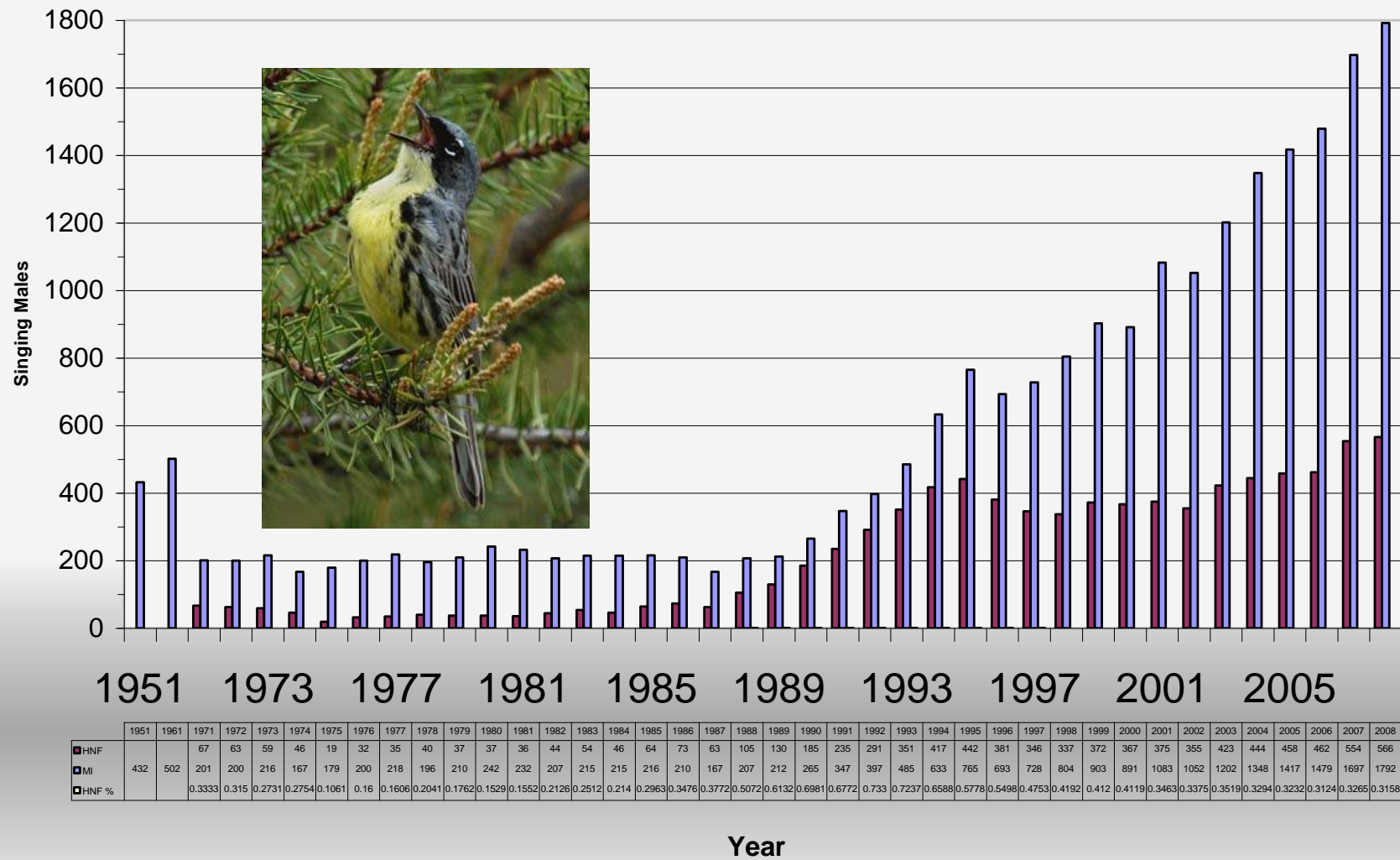


Table 26. FY Kirtland's Warbler Census Results, Singing Males – FY 2005 – 2008.

Census Area	FY 2005		FY 2006		FY 2007		FY 2008	
Eldorado KWMA	35		37		28		45	
Big Creek KWMA	105		49		47		38	
Mack Lake KWMA	41		27		47		69	
ATV Burn			0		2		1	
No Pablo Burn			0		3		20	
McKinley KWMA	33		35		43		34	
Pine River KWMA	244		304		370		356	
Tawas KWMA	0		10		19		24	
Luzerne Blowdown	0		0		0			
Hagaman Burn	0		0		0		0	
Total	458		462		554			
Habitat Type	FY 2005		FY 2006		FY 2007		FY2008	
Plantation	424	92.6%	429	92.9%	490	88.4%	502	88.7%
Wildfires	0				6	1.1%	21	3.7%
Natural Regeneration	34	7.4%	33	7.1%	58	10.5%	43	7.6%
Total	458		462		554		566	
Management Objective: HMNF = 420 of 1000								
Lower Peninsula Total	1399		1458		1665		1758	
Upper Peninsula Total	18		21		32		34	
Michigan Total	1417		1479		1697		1792	

Huron National Forest census efforts located 566 singing male Kirtland's warblers on National Forest System land (NFSL) in 2008, the highest number ever documented. This is 32 percent of the total singing male Kirtland's warbler population, slightly below 2007 (33 percent). The 566-male count is nearly 35 percent higher than the Forest's goal of producing a minimum of 420 individuals from nesting habitat on NFSL. The Forest exceeded its goal once in 1995 because of the Mack Lake Burn, and then every year since 2003. The success of the past six years can be attributed to the Forest's efforts to create jack pine plantation habitat.

From 2007 to 2008, the count on the Huron National Forest increased by 12 singing males (2percent), from 554 to 566. Acres of occupied habitat decreased from 9,947 in 2007 to 9,284 in 2008 (- 6.7 percent). No occupied habitat was affected by wildfire in 2008.

Piping Plover

During the 2008 breeding season, 63 pairs of piping plovers produced 71 nests and raised 112 wild chicks to fledging and an additional 28 chicks were released by the captive-rearing facility. Eight captive-reared plovers released in previous years were spotted on the breeding grounds in 2008; four of these plovers nested and one nesting adult was the offspring of a captive-reared female. In addition, 32 non-nesting birds (with chick-band combinations) were observed in 2008. Only one plover, and no nests or evidence of breeding, were found in Critical Habitat areas on Manistee National Forest Service lands in 2008.

Piping Plover Critical Habitat on Cadillac-Manistee Ranger District was monitored in 2008 by 29 surveys conducted in Nordhouse Dunes Wilderness. Monitoring was conducted once or twice per week in Nordhouse Dunes Wilderness and the LMRA, between April 22 and August 13, 2008. Observations were made using a 25-60X spotting scope or 8x40 binoculars. Surveys were reduced in early July, and ended before August in accordance with the Biological Opinion for the Piping Plover (USFWS 2006).

During the 2008 breeding season, 63 pairs of piping plovers produced 71 nests and raised 112 wild chicks to fledging. An additional 28 chicks were released by the captive-rearing facility. Eight captive-reared plovers released in previous years were spotted on the breeding grounds in 2008; four of these plovers nested and one nesting adult was the offspring of a captive-reared female. In addition, 32 non-nesting birds (with chick-band combinations) were observed in 2008 (Dingledine et al, 2008). Plovers were sighted on HMNF NFSL on only one occasion during 2008, and no plover nests were discovered on NFSL during monitoring surveys, although plovers successfully raised four young at a nest within the city of Manistee, monitored by District staff.

Table 27. Summary of 2008 Nesting Activity in the Manistee RD, Great Lakes Area.

Nests	71
Pairs	63
Wild young fledged	112
Captive reared young fledged	28
Total fledged	140
1078 Chicks fledged per pair	
2.22 Wild + Captive chicks fledged per pair	
Sleeping Bear Dunes had 34% of the total pairs this year	

Four captive-reared birds nested this year, of eight captive-reared birds observed on breeding grounds.

Bald Eagle

Aerial surveys of bald eagle nests continued in 2008, despite the bald eagle having been down-listed from “Threatened” to “Regional Forester Sensitive” in late 2007. “ETS Conservation Strategies” outlines protocols for cooperative surveys conducted in coordination between volunteer Jerry Weinrich (retired MI DNR), the Forests, MI DNR, USDI Fish & Wildlife Service, and Dr. Bill Bowerman of Clemson University. Aerial surveys of bald eagle nesting pairs and nest territories annually determine how many occupied bald eagle nesting territories exist on the Forests (and across the Northern Lower Peninsula). Nest searches concentrate on historic nests and likely riparian areas near lakes, wetlands and large rivers. Counts from previous years, using similar methods, are useful for qualitatively examining trends.

The number of bald eagle nest tree sites (active and less than five years since active) protected by a 330 feet no-disturbance zone during silvicultural treatment is compiled from District Biologists’ data gathered during project Biological Evaluation preparation. “Closures” of occupied bald eagle territories to human intrusion are ordered each year by the Forest Supervisor, posted by Districts, and enforced by Forest Law Enforcement Officers and Forest Protection Officers.

Restoration of Savannahs, Prairies, Dry Grasslands, Mesic Grasslands, Shrub/Scrub, Oak-Pine Barrens in LTAs 1 & 2, Old Growth Areas, Use of Prescribed Fire

Have prescribed fires or other management activities for the purpose of maintaining or creating Savannahs, Prairies, Dry Grasslands, Mesic Grasslands, Shrub/Scrub, Oak-Pine Barrens moved these areas toward the desired future condition?

Table 28. Acres within Fire-adapted LTAs Treated with Prescribed Fire, FY 2008.

Ranger District	Broadcast Burn	Under Burn	Wildlife Habitat Prescribed Fire	Totals
Acres				
Baldwin - White Cloud	228	0	307	535
Cadillac - Manistee	975	0	46	1,021
Huron Shores	0	1,618	263	1,881
Mio	207	1,429	224	1,860
Forest Total	1,410	3,047	840	5,297

About 1,000 acres of Savannahs, Prairies, Dry Grasslands, Mesic Grasslands, Shrub/Scrub, or Oak-Pine Barrens were burned or had vegetation management activities that promoted conditions that are more natural or disturbance regimes. Prescribed treatments employed habitat restoration tools such as timber harvest, prescribed burning, or hand release. The purpose of prescribed burns was largely Fuels and Restoration, Fire Regimes 1 & 2.

Prescribed fire on the Baldwin-White Cloud Ranger District focuses on restoring endangered Karner blue butterfly habitat. Burning on Huron Shores and Mio Districts restores fire-adapted ecosystems and protects human life, and prepares habitat for Endangered Kirtland's warblers. Prescribed fire in these dry sand prairies also improves habitat for Regional Forester's Sensitive Species including pale agoseris (false-dandelion - *Agoseris glauca*), Hill's thistle (*Cirsium hillii*) and rough fescue (*Festuca altaica*).

The Forests are progressing toward the Forest Plan goal of restoring and maintaining 10,000 acres of prairies, savannahs, and oak-pine barrens within old-growth areas by treating about 1,000 acres per year.

Conclusions

The Forests are pursuing opportunities to restore savannas, prairies, dry and mesic grasslands, shrub-scrub, and oak-pine barrens, particularly in conjunction with managing habitat for Endangered Karner blue butterfly and Kirtland's warbler. It is also restoring other fire-adapted ecosystems, and protecting human inhabitants of the Wildland Urban Interface.

Wildlife Forage – Transmission Lines

Are transmission lines being treated to benefit wildlife?

Transmission lines owned by Consumer's Energy and Wolverine Power cross Forest Service lands within easements managed by those companies. Managing powerline vegetation for low-growing grass and herbaceous vegetation benefits their operation, by removing woody vegetation that might affect lines or maintenance. It also creates potential habitat for Karner blue butterflies, if lupine or nectaring flowers are present.



Cooperative Wildlife Habitat Treatment plot near Newaygo

Consumer's Energy monitors and reports (to Federal Energy Regulatory Commission, US Fish & Wildlife Service and to the Forest Service) on transmission line treatments intended to improve Karner Blue Butterfly habitat each year. In 2006, Consumer's Energy managed 14 acres at two transmission line locations within the Forests boundary (but on State Land: Croton Boat Launch and Newaygo State Park) by manual cutting, herbiciding, hand-pulling knapweed and hand-planting lupine, primarily to benefit Karner Blue Butterfly.

Conclusions

This partnership effort has the potential to provide corridors between occupied habitats, enhancing dispersal, colonization and survival of Karner Blue Butterflies, especially in meta-population areas identified on the Manistee National Forest, Baldwin-White Cloud Ranger District.

Fisheries & Wildlife, Tribal & Michigan Department of Natural Resources Habitat Objectives

Is management of National Forest habitats consistent with meeting Michigan DNR wildlife and fish population objectives? Are the tribes consulted regarding wildlife and fisheries objectives?

The Forests coordinate with Michigan DNR and Tribes by participating in bear, deer, ruffed grouse, turkey, and fisheries planning meetings, and share habitat data with MDNR and USFWS. Site-specific prescriptions for RFSS are implemented, when they occur within project areas.

Specifically, the Forests meet regularly with Michigan DNR, to discuss population management objectives for white-tailed deer, black bear, game fish, otter, marten, etc. In 2008, Forest Biologists contributed to deliberations of the MI DNR “Bear Consultation Team” and began participating in the MI DNR “Deer Advisory Team”, representing the views and concerns of all three Michigan National Forests. The HMNFs also cooperate with Tribes (Little River Band of Ottawa Indians and Grand Traverse Band of Ottawa and Chippewa Indians) on marten and white-tailed deer studies, native sturgeon restoration, and non-native invasive species control.

Additionally, the Forests began in 2008 and continue to participate in the MDNR biodiversity planning process (BCPP). The goal of BCPP is to establish a network of representative natural communities that will ensure the conservation, maintenance and restoration of Michigan’s native biodiversity. Eventually, the areas that comprise this network will consist of high quality natural communities and will be called Biodiversity Stewardship Areas (BSAs). A BSA will be a natural community where the priority management objective will be to maintain, enhance, or restore high quality natural community characteristics. For further information, readers should investigate the MDNR BCPP website at: http://michigan.gov/dnr/0,1607,7-153-30301_30505_33935-105947--,00.html.

Conclusions

The Forests will continue to collaborate and cooperate with Tribes, and other Federal and State agencies to achieve shared wildlife and fish population objectives.

Fire Prevention and Fire Suppression

What activities have been done to promote safe fire prevention and fire suppression?

Large catastrophic wildfires occur on a regular basis on the Huron-Manistee National Forests. On average, a 5,000 acre fire burns in the conifer fuel types every five years.

The Forests manages a major part of the largest contiguous area of jack pine in the United States. This fuel type, on quick drying sandy soils, generates very high fire danger in April and May, particularly when a phenomenon called a Hudson Bay High occurs, contributing to the high fire potential. During this time, a large area of cool, dry air builds up west and southwest of Hudson Bay, including the Great Lakes region. This air mass stalls over the region and produces many consecutive days of dry weather, which dries out the previous season's fine fuels. The temperature increases and the stage is set for a fire event.

Smaller fires are fairly common on the Forests requiring an organized and immediate response to minimize their severity. Fire suppression response is commensurate with the hazards at risk. Safety of employees and public is the first objective of every wildfire response. Minimum impact suppression tactics are decided on by the Incident Commander on each fire.

The Forests have an active fire prevention program. Local media, including television and radio, are provided with up-to-date fire danger information. Programs such as Firesafe are provided to the public at special events to promote involvement in activities that reduce fire risk around homes or cabins.

Site review of fires is accomplished by Line Officers. The 134 acre Hoxeyville Fire on the Cadillac Manistee District was reviewed by the District Ranger and Deputy Forest FMO. The Forests had 118 fires in FY 2008 requiring a Forest Service response. Responses involved from, one fire engine responding to the scene, to multiple engines, dozers, and aircraft responding.



Structures threatened by the Hoxeyville Fire (photo by Northwoods Aviation)

Prescribed burn plans and project implementation are also reviewed by line officers and fire staff. Line officer participation in after action review discussions are accomplished for safety concerns and rating how well objectives were met.

Prescribed fire burn planning is thorough, with multiple level reviews. National, Regional and Forest direction for burn plan format and content are done for all management ignited burning. Detailed briefings prior to burn implementation, and After Action Reviews (AARs) are completed to acknowledge success and assess possible actions to improve burn management.

Conclusions

The Forests continue to be very strong in promoting safe practices in fire suppression, fuels management, and fire prevention. Forest Leadership and firefighters have as their main emphasis, fire safety in all activities on and off the Forests.

Wildland fire suppression and prescribed burning did not result in any reportable accidents or injuries to personnel involved. Pre-work briefings, reviewing specific Job Hazard Analysis, and personal attention to performing activities safely have contributed to a safe work environment.

Adequate communications are the backbone of safe fire suppression and prevention. A fully functioning Forest radio system, with back up, is paramount. Interoperability with cooperators is also essential. The Michigan Dept. of Natural Resources (DNR), other federal land management agencies, Law Enforcement, and Local Fire Departments are all part of a safe and effective fire program. Coordination and cooperation has been good.

An Annual Operating Plan is updated each year with the State of Michigan to facilitate fire fighting operations when both organizations are involved.

Distribution of Fire Condition Class

What is the distribution of National Forest System acres by fire condition class? How many acres have been treated that result in an improvement of at least one fire condition class? What are the number and size of wildfires? Are wildfires being suppressed using appropriate response? Are analyses being performed on prevention, presuppression, and suppression efforts?

Condition class change is recorded in the Forest Service ACTivity Tracking System (FACTS) database as projects are completed. Forest fuels planners are determining class change by percentage based on condition change from the fuel reduction and vegetation management activities.

Wildfires are being suppressed with the appropriate suppression response. Minimum impact suppression tactics are used where conditions allow. Rehabilitation of ground disturbing activities done during suppression is completed on all fire areas recommended by resource advisors.

The Forests had 118 fires in FY 2008 for 415 acres. The Hoxeyville Fire of April 16, 2008 burned 134 acres. Numerous structures were burned due to this fast moving grass fire.

Appropriate management response in suppression of fires include using natural fuel breaks for control lines, wet line or hand line in place of dozer plow line, and the use of aviation resources. Fire fighter and public safety are always the first consideration of the fire suppression response.

Table 29 . FY 2008 Statistical Fire Causes.

Cause	Fires	Percent	Acres	Percent
Lightning	1	1%	.1	<1%
Equipment	3	2.5%	2	<1%
Smoking	2	2%	1	<1%
Campfire	10	8%	55	13%
Debris	47	40%	217	52%
Arson	3	2.5%	1	<1%
Children	7	6%	9	2%
Miscellaneous	45	38%	130	31%

Hazardous fuel reduction was accomplished on 5,210 acres of National Forest land. This resulted in directly improving condition class on these acres. These areas were broadcast burned, had mechanical fuel reduction activity, or had other vegetation management that lessened the wildfire risk. Project areas were monitored after activity completion to confirm the reduction in fuel loading and fire hazard risk. In addition, another 4,750 acres were treated by vegetation management practices, such as conifer harvest for Kirtland's warbler habitat, wildlife opening maintenance, and conifer plantation thinning. These activities also contributed to improved condition class for these stands.

Annual Preparedness reviews are conducted on the Forests by fire staff and line officers. These include a review of prevention, presuppression, and suppression activities on the Districts.

Conclusions

Condition class change was accomplished on the project areas that moved them toward a fire regime that is within a historical range defined in terms of departure from the historic fire return interval. This means vegetation attributes (species composition and structure) are intact and ecosystems are functioning within their historical range. Cumulative effects as larger areas are treated each year add to beneficial landscape level changes across the Forests.

Annual Preparedness reviews show that District personnel are performing at a satisfactory or better level in their fire management programs. Concerns are addressed and corrected in a timely manner.

A quick suppression response to wildfires in the conifer fuel types on the Forests makes the difference between a small fire and a large destructive fire. Monitoring of initial attack success of holding fires to low acres burned is done to judge suppression effectiveness.

Fire Hazard Rating

What is the distribution of National Forest System acres by fire hazard rating? How many acres in fire dependent ecosystems and at-risk urban-rural interface and intermix areas have been reduced by at least one hazard rating class?

The priority for fuel reduction activities are high fire risk areas around improvements with value. Many of these areas are near public residences or seasonal dwellings on private property. Because of the preponderance of private land, in-holdings across the Forests there are many private land improvements that have a high risk of damage or destruction from a wildland fire. These areas are identified in the NEPA process for priority treatment.

Hazard rating reduction takes place through vegetation management fuels treatments. In FY 2008 the Forests accomplished activities on 9,960 acres that lowered fire hazard rating. Monitoring through contract administration, and line officer involvement ensure objectives are being met. Prescribed burning, timber sales, mechanical treatments, and other vegetation management have combined to reduced wildfire hazard on the Forests and lessen the risk to Forests employees and public. Vegetation Management projects that reduced fire hazard are entered into the FACTS database.

Conclusions

The Forests are not measuring hazard ratings per say, though fuel hazard reduction activities reduce the tons of fuel available to burn in wildfires. Fire suppression activities are most always more successful when there is less fuel to burn in a wildfire. The hazardous fuel reduction projects are making a difference.

It will take many years of hazard reduction and condition class change to get the Forests back to pre-settlement conditions. Already wildfires have burned up to or into areas that have had hazardous fuel reduction treatments, and in all cases the fire behavior has lessened. This has allowed safer and more effective fire suppression.

An exception to a more natural condition class being less fire danger is the jack pine fuel type. Jack pine in its natural condition is regenerated with stand replacement fire approximately every 30 to 50 years. Through fuel breaks and Kirtland warbler harvest areas, the Forests attempt to mitigate large wildfire potential in this fuel type.

Inventory and Protection of Heritage Resources

How many archaeological and historic studies were initiated and completed? How the information was distributed, and did this information benefit National Environmental Policy Act analysis/project planning? Have heritage resources across the Forests been inventoried and protected?

Heritage or cultural resources are the remains of sites, structures, or objects used by people in the past. They may be recent or ancient in age and archaeological or architectural in nature. Cultural resources are actual physical things--places, buildings, artifacts, and documentary materials relating to the events and processes of a past way of life. The value of preserving significant cultural resources lies in the stories they can tell about former life ways, people's environmental relationships, and human behavior in general. Cultural resource values may be aesthetic, historical, scientific, and/or interpretive and are often dependent on the integrity (lack of disturbance) of the resource and its surroundings. Because of their large land base and relative isolation, national forests preserve an important part of our nation's cultural heritage.

Heritage resource management consists of activities designed to help conserve the nation's diverse cultural record and further the public's understanding and enjoyment of that record. Based on the concepts of conservation and stewardship, the program is carried out under several statutory authorities; principally the National Historic Preservation Act. Section 106 of the Act addresses the potential for work projects to adversely affect the cultural record. Under Section 106, reviews and fieldwork are conducted to identify, evaluate, and protect, as needed, heritage resources from the disturbing effects of a wide variety of actions from timber cutting to road reconstruction. In meeting the mandates of Section 106, the Forests' conducted approximately 110 internal literature searches and field survey projects encompassing some 12,207 project acres in FY 2008. Ninety-six new or previously recorded heritage properties were encountered during to the Forests' inventory. Approximately 73 sites received condition monitoring work. Information and recommendations resulting from this activity were incorporated into NEPA team analyses and records and carried through to project implementation as appropriate. Inventory records, including site and survey data, are maintained as paper files but selected information is increasingly included in GIS and other databases. Heritage personnel also had significant field and coordination roles with a large alternative energy project. In addition, a volunteer devoted 32 hours, valued at \$400, helping the Forests achieve their project inventory requirements.

Section 110 of the National Historic Preservation Act mandates a program of proactive stewardship and public involvement. Section 110 activities are

supported by direct appropriation with major portions of recent specific project funding derived from non-Heritage allocations. Appropriated funds are often combined with contributions from partners and other cooperators. Highlights of FY 2008 Section 110 work include:

- Research, design and production of interpretive signage for the Udell Lookout Tower site, with funding provided by the Eastern National Forests Interpretive Association,
- Display panel design for the new Mio ranger station on geology, history and archaeology,
- Public presentations honoring the 75th anniversary of the Civilian Conservation Corp (CCC) were given at Lumbermen's Monument and the Eldorado CCC camp as well as the topic of an interview and newspaper article in the Cadillac News. In addition, background material and information was provided for a paper and presentation on the CCC at the Society of Historical Archaeology 2008 annual meeting. A program on archeology and historic preservation was also presented to the Cadillac Girl Scouts.
- Through a service contract with Hardlines Design of Columbus, Ohio, the Forests completed an historic resources study of the Chittenden Nursery and Wellston Guard Stations. The objectives of the study were to produce an historical context and administrative history for the facilities including condition assessments and National Register of Historic Places nominations.

Other Section 110 projects included several heritage management orientation sessions for a number of the Forests employees.

Conclusions

The Forests are meeting Forest Plan direction for heritage resources in respect to NHPA Section 106 requirements. Coordination of resource protection needs during project design and implementation continues as a priority. Funding is needed to initiate the process for curation of the Forests' archeological collections and to minimally address new and challenging program target and accounting responsibilities.

Recommendations

It is recommended that the Forests continue to meet Forest Plan and new manual direction for heritage resources, nominate effectively documented properties to the National Register of Historic Places, develop a curation agreement with an in-State repository, and maintain national corporate and local databases.

Fisheries, Aquatic Endangered, Threatened, Sensitive, and Aquatic Non-Native Invasive Species Management

To what extent is forest management contributing or responding to populations of terrestrial/aquatic non-native invasive species of concern?

Lake Mitchell Eurasian Water Milfoil

The Lake Mitchell Improvement Board (LMIB) treated 300 acres of Eurasian water milfoil (*Myriophyllum spicatum*) on Lake Mitchell, including 20 acres in the Big Cove area that is adjacent to National Forest system lands, with 2, 4-D, an EPA approved herbicide under permit from the Michigan DEQ's aquatic nuisance plant control program. The U.S. Forest Service has a campground and boat launch on Lake Mitchell in the Big Cove area in the southwest portion of the lake.

**Au Sable River Garlic Mustard**

An infestation of garlic mustard (*Alliaria petiolata*) in riparian habitat below Foote hydro-electric dam on the Au Sable River was treated in 2008. This was a partnership between Consumers Energy and the Forest Service. Approximately five acres were treated through a combination of hand-pulling and herbicide application. The objective is to contain the infestation so that it does not spread to adjacent National Forest system lands.

**Hamlin Lake Phragmites**

Members of the Hamlin Lake Preservation Society met twice in September 2008 to hand cut phragmites to minimize its spread throughout Hamlin Marsh. Since herbicide use is discouraged in this marsh, cutting it and removing the stems will hopefully keep it from spreading. About 0.01 acres of the 0.1 acre patch was treated.



Manistee River Garlic Mustard

Infestations of garlic mustard were hand-pulled at 5 public access sites along the Manistee River during a district-wide work day. Non-native bush honeysuckle was also removed at one site by using a weed wrench and a lot of hard work.

Little Manistee River Garlic Mustard

One infestation of garlic mustard was hand-pulled at one river access site along the Little Manistee River.

Loda Lake Loosestrife

An ongoing small (< 1/10th acre) infestation of Purple loosestrife (*Lythrum salicaria*) was treated at Loda Lake, a unique wildflower sanctuary located in Newaygo County on the Manistee National Forest. 2008 activities consisted of hand-pulling and dead-heading blossoms to prevent new seeds.

Pere Marquette River Barberry

An infestation of Japanese barberry (*Berberis thunbergii*) was mapped along the Pere Marquette at the Green Cottage access site. This is not surprising given that this was a home site at one time and the barberry was probably planted as an ornamental. Seedlings were pulled in 2008 and plans are to remove the remainder through mechanical means in 2009.

Clear Lake, Jewell Lake, and Cruzen Wetlands Loosestrife

Loosestrife beetles (*Galerucella* spp.) from past release sites were collected and released at Clear Lake, Jewel Lake and the Cruzen wetland to control purple loosestrife (*Lythrum salicaria*; 15 total acres). This was the third year that beetles were released at each of these sites.

Lake Huron Phragmites

Approximately 10 acres of the Lake Huron shoreline in the Black River area was treated with herbicide to control phragmites and reed canary grass. This was the third consecutive year of this treatment.

Evaluation and Conclusions

The treatment of Eurasian milfoil in Lake Mitchell with 2, 4-D has been not as successful as originally hoped. However, a new integrated treatment proposal will be implemented in 2009. It will consist of an intensive grid survey to identify

all areas of milfoil infestation. Two approaches will then be used to treat the identified milfoil areas: (1) stocking of milfoil weevils into two areas of known milfoil infestation (Big Cove and an area along the north shore); and, (2) spot treatment of the other identified locations of milfoil with the herbicide 2,4-D. It is hoped that the stocked weevil areas will serve as a “nursery” area for the weevils to propagate and disperse to other areas of the lake over time.

The Forest Service entered into a Challenge Cost Share Agreement with the Lake Mitchell Improvement Board in 2008 to continue the milfoil control and management. Not all of the Forest Service funds obligated in FY 2008 were expended and it is the intention of the LMIB to apply the balance towards the weevil stocking for milfoil control in Big Cove. Although the majority of the Lake Mitchell shoreline is in private ownership, National Forest lands in the southwest corner of the lake benefit from the treatment.

It took much more time and energy to hand-cut and remove the phragmites in Hamlin Marsh than was expected. Even with a crew of 6-8 people working two days, only a very small portion of the phragmites was treated. The Hamlin Lake Preservation Society is dedicated to making sure that this patch of phragmites is treated annually to keep it from overwhelming the rest of the marsh. In 2009 treatment will begin at the end of August and continue through September to increase the likelihood that the entire patch will be cut and stems removed.

The treatment of garlic mustard along the Au Sable River will be monitored in 2008 to see if follow-up control measures are needed. The Forest Service entered into a Challenge Cost Share Agreement with Consumers Energy in 2008 and not all of the funds obligated in FY 2008 were expended. The balance will be used for the purchase of additional herbicide if necessary.

The garlic mustard infestations along the Manistee and Little Manistee Rivers were treated in 2006-2008. Treatment will continue in 2009. The size and density of the infestations have been decreasing, but the patches will need to be treated for several more years to ensure adequate control.

The ongoing treatment of purple loosestrife at Loda Lake appears to be successful in the sense that the size of the infestation has not grown since the initial treatment 4-5 years ago. This infestation will continue to be treated annually through the techniques described above.

The Pere Marquette River Green Cottage barberry removal will continue in 2009 and be evaluated for success in subsequent years.

Evidence of loosestrife beetles from prior releases was found at Clear Lake, Jewell Lake, and Cruzen Wetlands but it was felt that supplemental “seeding” was needed.

A decrease in both phragmites and reed canary grass has been observed along the treated shoreline of Lake Huron in the Black River area. However, invasion from adjacent private lands is still a problem.

Non-Native Invasive Species - Strategy

To what extent is forest management contributing or responding to populations of terrestrial/aquatic non-native invasive species (NNIS) of concern? How has the national NNIS strategy been implemented on the Forests?

The Huron-Manistee National Forests continued to develop the NNIS Plant Control program, begun in FY 2007, using Forests-wide Integrated Pest Management treatments to control priority infestations. The Forest Wide Programmatic NNIS Environmental Assessment is almost completed with the NEPA process expected to be completed by August 2009. This will enhance the ability for treatments outside of administrative areas, which require the use of herbicides.

The Huron-Manistee National Forests continue with the requirement of logging equipment cleaning in timber sale contracts to minimize the spread of NNIS. Landings, sediment basin spoils sites, and other disturbed areas are seeded with native or non-persistent non-native species to minimize colonization by NNIS.



Motocross trail/head/parking lot
reseeded with native species

Obliterated road on the Baldwin-
White Cloud Ranger District planted
to native nectar/grasses for
pollinators



Employees are being trained to recognize high priority NNIS along with instructions for reporting NNIS infestations. Non-native invasive species are being treated as time and personnel allow, giving precedence to higher-priority areas and higher-priority NNIS.

The Forests implement early detection and rapid response by partnering with the Northwest Michigan CWMA, Michigan Dune Alliance, and others to identify infestations of NNIS. Volunteer groups are taught to identify NNIS and treat NNIS infestations on Forest Service land. NNIS locations are verified by Botany staff and are entered into Forest Service corporate databases and analyzed for response strategy. In addition, a botanist surveys all areas proposed for future treatment or activities.



Huron-Manistee National Forests NNIS Removal Crew in Pitcher's Thistle Habitat, Nordhouse Dunes Wilderness Area



Phragmites, Lake Michigan, Nordhouse Dunes Wilderness Area

Non-Native Invasive Species - Treatment

What percent of NNIS sites and acres have been treated, and how effective was the treatment?

Very little of the located NNIS populations have been treated as the program is still being developed. Areas treated are varied in their response. While the percent mortality is high for most herbicide treatments, a long period is required for repeat (annual) treatment due to the seed bank and length of seed viability. Hand weeding has also shown a positive impact on NNIS, but there is still the need for continued annual treatment activity. In one example, despite four years of hand pulling and herbiciding, garlic mustard population has spread, partly due to county road maintenance.

Cadillac-Manistee Ranger District treated 33 of 48 sites slated for treatment (69%). A total of 90.44 of infested acres out of the 196.56 acres slated for treatment (46%) were treated. However, many of these sites were treated multiple times throughout the summer, for a total of 169.2 acres. Staff monitored 22 of 31 sites treated in FY 2007 (71%). Efficacy ranged from 25% to 90%.

On the Huron National Forest, less than 1% has been treated with around 50% effectiveness. Phragmites is estimated to be 95% contained on the Huron National Forest near Lake Huron coast. This is around 50% of the known Phragmites on FS Land. Garlic Mustard is 10% contained at 100% of the known sites. Loosestrife is probably 50% contained at 50% of the known sites. Approximately 20 acres of Clark's Marsh was burned to control Japanese barberry. some success occurred, however additional burns will be needed. About 80 acres of upland openings in the Tuttle Marsh area was burned to control smooth brome, Kentucky bluegrass and spotted knapweed. It is estimated that 50% of these have been reduced however additional treatments will be needed.

On the Baldwin-White Cloud Ranger District, hand pulling of garlic mustard occurred prior to or during flowering to prevent additional seed entering into the seedbank. If NEPA is completed for the site, then herbiciding is also done. For new native plant seeding restoration sites, handweeding is done annually for each site to keep NNIS from becoming established. In some cases, additional herbiciding may be done for species such as leafy spurge, which cannot be treated by handpulling. Young stems of honeysuckle, barberry, and autumn olive shrubs are hand pulled. Larger plants are treated with either a cut-stem herbicide application or are pulled out with mechanical equipment.

Methods employed on the Cadillac-Manistee District included girdling Lombardy poplar; cutting and removing phragmites; hand-pulling garlic

mustard, spotted knapweed, Canada thistle, bull thistle, and hound's tongue; mowing and herbiciding spotted knapweed; and ripping out autumn olive and non-native bush honeysuckles with weed wrenches. Huron Shores has been utilizing prescribed burns and herbicide applications to control targeted species.

All treatment sites are monitored by visual observation each year, remapped if necessary, and evaluated for treatment activities needed the following year. Mio and Huron Shores will continue to evaluate via GPS tagged digital photos.

Evaluation and Conclusions

Noxious weed populations continue to increase and compete with desirable native species. Present control methods are ineffective in reducing the population and spread of noxious weeds throughout the Forests. Herbicides presently are not used to reduce noxious weed populations except in 30 administrative or recreation sites. Control efforts are likely to remain ineffective until a State-wide, multi-jurisdictional control program is developed and funded.

Forests will continue to increase the intensity of noxious weeds surveys and to explore methods of noxious weed control with emphasis on biological controls. Use of herbicides should be considered to effectively control noxious weeds. Continue to participate and cooperate with Forest staff, other agencies, and the private sector to inform them of Non-Native Invasive plant concerns and control opportunities. Seek support and funding for a noxious weed program that effectively decreases noxious weed populations, and protects and maintains native species and sensitive habitats.



Cadillac-Manistee RD employee Brady Boyce pulling spotted knapweed in the Nordhouse Dunes Wilderness Area

Effects of Off-Road Vehicles on Non-Native Invasive Species (NNIS)

What are the effects of off-road vehicle use on the spread of Non-Native Invasive Species (NNIS)?

The Forests are not specifically monitoring off-road vehicle introduction or spread of NNIS as are to treat high priority NNIS species and high priority lands/landuse areas. A quantitative estimate of the rate of spread of NNIS adjacent to ORV trails would require staffing to survey at least parts of the 1,796 miles of trails and 2,900 miles of roads on the Forests. Approximately 640 miles of trails are open to snowmobile use in season; 596 miles of designated motorized trails are open to all-terrain/off-road vehicle use; 180 miles of trails are open to hiking, supplemented in season by 160 miles used for horse-riding or hiking, and 140 miles designated for cross-country skiing or hiking; 80 miles of trails are used for mountain-biking, cross-country skiing, or hiking – each with different risks from NNIS. Rate of spread could be quantified as the change in percentage of roads or trails infested from year to year, or the change in miles of roads or trail that are infested from year to year. Confidence in these measures, and their usefulness for management, depend, in part, on the sampling effort.

The Forests' have emphasized completion of the NNIS Plant Control Plan, educating Forest staff on priority NNIS threats so they can be reported, and controlling populations of NNIS that pose the greatest threat to sensitive plant populations and habitats. Monitoring effects of off-road vehicle use has been incidental to other field activities. Inventories occur as resources allow.

Evaluation and Conclusions

Monitoring is a high priority, but accomplishment will depend on adequate Botanical staffing, and training of all Forest personnel to recognize and report NNIS. Management and treatment of NNIS discovered in these high-likelihood locations will also depend on adequate staffing, and judicious use of appropriate herbicides. OHV-user education through signage and brochures may help, as would equipment cleaning stations at strategic locations. The Forests need a targeted NNIS strategy to survey ORV routes. Now that the ORV ordinance has passed in many counties, NNIS will most like spread more rapidly.

Minerals - Environmental Protection & Utilization in Leasing and Permits

Are lease stipulations and permit conditions ensuring sound environmental protection and resource utilization?

Mineral ownership lying within the boundaries of the Huron-Manistee National Forests includes Federal, State and private mineral interests. Lease rights granted differ for each type of ownership, and the degree of control and authority over leasing and subsequent surface use also varies. Using applicable Federal and State regulatory controls, Forest Plan standards and guidelines, and negotiating terms and conditions of surface use with operators on private minerals, the Forest Service ensures that mineral leasing and development are accomplished in a manner that is consistent with the management area direction. If the mineral ownership is federal, the leasing agency is the U.S. Department of the Interior, Bureau of Land Management (BLM). BLM cannot lease over the objection of the Forest Service and the Forest Service has the authority to restrict surface use as deemed reasonable and necessary to protect surface resources.

Producing oil and gas wells and production facilities are inspected at least once per year. Drilling operations are inspected as frequently as necessary to ensure compliance with operating conditions or applicable regulatory controls. Inspections are conducted to validate that stipulations (i.e., Forest Plan Standards and Guidelines) and/or operating conditions are followed, and that protection measures are effective in protection of resource values. In FY 2008, the HMNF administered 40 sites to standard. These sites included producing well sites, production facilities and drilling activity.



Processing of lease applications and drilling permit applications is done in a manner that is consistent with the direction provided by the Forest Plan. The Forest Plan identifies those federal minerals that are available for leasing and specifies the applicable lease stipulations. The HMNF incorporated mandatory regulatory requirements regarding mineral availability decisions into the Revised Forest Plan (March 2006). In FY 2008, the Forests identified approximately 48,000 acres of federal mineral ownership as available for federal leasing. This acreage was subsequently offered for competitive leasing by the BLM. The State of Michigan requests the Forests' recommendations on lease stipulations when leasing State minerals under National Forest System (NFS)

lands. The HMNF identifies which State lease stipulations are applicable and ensures comparable protection to that found when leasing federal mineral estate. In FY 2008, we reviewed approximately 1,360 acres of NFS lands to identify necessary lease stipulations on lands with State mineral interest. When private mineral rights under NFS lands are leased, the Forests negotiates reasonable and necessary surface use conditions with oil and gas operators at the time development is proposed. We rely, to a large extent, on State regulatory controls to ensure resource protection. Close cooperation with the Michigan Department of Environmental Quality, Office of Geological Survey (OGS) during processing of drilling permit applications ensures that needed mitigation measures are applied consistently by all applicable regulatory agencies.



Evaluations and Conclusions

The Forest Service's authority to control or regulate mineral activity on National Forest System lands is dependent upon who owns the mineral interest. Operations occurring on Federal mineral interest are generally more consistent with Forest Plan direction due to the fact that: 1) we have the ability to provide necessary lease stipulations for inclusion in issued federal leases, and 2) we (Forest Service and BLM) have more regulatory control over the operations. That is not to say that sites on State or private minerals are not regulated or maintained. Again, close cooperation with the OGS during processing of drilling permit applications ensures that needed mitigation measures are applied consistently by all applicable regulatory agencies. When on-the-ground concerns arise, the Forests cooperate with the OGS to address potential issues or problems. We foresee that this cooperative relationship will continue in the future, thus enhancing our ability to ensure necessary resource protection measures are implemented.

The Forests continue to monitor mineral leasing and development activities on National Forest System lands. This includes on-site inspections and monitoring of the level of new oil and gas development following completion of Plan Revision.

Land Ownership - Adjustments through Purchase, Exchange, Transfer Interchange, Boundary Adjustment, and Donation

To what extent has the Forests' land base been adjusted through purchase, exchange, transfer interchange, boundary adjustment, and donation? What land conveyances, purchases or exchanges have occurred to 1) protect T&E or RFSS species, 2) Increase public ownership on lakes and river, 3) acquire lands with unique ecological, scientific, heritage, or recreational qualities?

The Forests continue with land adjustment program, including purchases, exchanges, and accepting donations to meet goals of the 2006 Forest Plan. The land adjustment goal set forth in the 2006 Forest Plan is to acquire lands needed to protect endangered, threatened, and sensitive species, increase the amount of wetlands, water frontage, and areas possessing unique natural environments or cultural resources.

In FY 2008, one land-for-timber exchange was completed. This exchange resulted in the acquisition of 39.5 acres within the Briar Hills semi-primitive nonmotorized area. The acquisition eliminated the need for surveying and marking one mile of boundary line and establishing three subdivisional survey corners saving approximately \$13,000 at current contract survey costs.

Through the Forest Service Realignment and Enhancement Act of 2005, one administration site was conveyed through a competitive sale. The Harrietta Administrative Site was sold to the highest bidder. The agency determined that the four buildings and .39 acres of land associated with this administrative site were no longer necessary for forest management purposed and should be conveyed out of Federal ownership.

A total of eleven title management cases were resolved Forest-wide. Resolution of one case resulted in the conveyance of .014 acres of Forest Service land to a private individual to resolve an encroachment onto National Forest System lands.

Annual reports are submitted to the Regional Office regarding land adjustment completions.

Conclusions

Several land adjustment cases are in progress and the Forests continue to work toward their completion. As new opportunities for land acquisition are presented to the Forests they will be evaluated to determine if they are in the public interest and thus, pursued.

Effects of Street-legal Off-road Motorized Vehicle Use on Trails, Routes, and Roads

What are the demand, supply, and trends of visitors using motorized vehicles, both off-road and street-legal? How many miles of trails, routes, roads, and acres of area have been designated open? Are trails and roads being maintained to safe standards?

A nation-wide Travel Management Rule was completed in November 9, 2005. The Travel Management Rule (2005) provides expectations for motorized travel access management on the National Forests. The intent of the Rule is to provide regulation of motorized vehicle in relationship to environmental and social impacts, while recognizing that motorized recreation is a legitimate use of National Forest system lands in the right places. According to the rule on all National Forest System lands, motor vehicles can only be used on roads, trails, and areas that are designated open. This includes all motorized wheeled vehicles from ORVs to highway-legal cars.

Huron-Manistee National Forests have published Motorized Vehicle Use Maps (MVUM) showing roads, trails, and areas, which are open to motorized travel. Travel maps will be updated each year on the same date to capture any management or resource changes. Changes to roads, trails, and areas are made using the National Environmental Policy Act process, which includes public involvement. Motorized Travel Maps will be free to the public and available for down load from Forest Service websites.

The Rule becomes effective when a national forest publishes their first Motor Vehicle Use Map. The Huron-Manistee National Forests has published a map for each of the four Ranger Districts, including Huron-Shores and Mio on the Huron National Forest, and Baldwin-White Cloud and Cadillac-Manistee on the Manistee National Forest.

Huron-Shores and Mio Ranger Districts on the Huron National Forest published their first Motor Vehicle Use Map (MVUM) in March 2008. Baldwin-White Cloud and Cadillac-Manistee on the Manistee National Forest published their first maps in September 2009. All maps will be republished each year in March.

Evaluation and Conclusions

The majority of the Huron-Manistee National Forests' transportation system is currently in place and supports a system of Forest roads and trails that are open to OHV and highway-legal vehicle use, (354d, book 1 page 249, Forest Closure

Order No. 5300/04/02/05 signed 6/13/2002). The 2006 Forest Plan sets desired conditions, goals and objectives that maintain a “closed unless designated open” policy for OHV travel, allows for a moderate level of increased OHV route development primarily focused on creating loops and connections between existing roads, trails and facilities, and to continue the current prohibition on cross-country motorized vehicle travel.

Table 30. Huron-Manistee National Forests Recreational Transportation System.

Ranger District	National Forest System (NFS) Acres	Date of First Publication of Motor Vehicle Use Map (MVUM)	Existing NFS Roads including Administrative use only roads and other jurisdiction	Existing National Forest Jurisdiction Roads only OPEN To Highway Legal Motor Vehicle Use	Existing NFS Trails and Routes Open To Motor Vehicle Use less than 50 inches (not including motorcycle only trails)	Existing NFS Trails Open To Motorcycle only (single track)	Existing NFS Trial and Routes open to Snowmobile from Dec 1 to March 15	Acres in Areas Designated open for motor vehicle (Bull Gap Hill Climb)
Baldwin-White Cloud	300,680	Sep-09	780	656	76	98	193	0
Cadillac-Manistee	239,127	Sep-09	1,000	682	0	44	142	0
Mio	211,276	Mar-08	785	544	180	28	302	4
Huron Shores	226,984	Mar-08	780	565	46	0	203	0
Total	978,067		3,345	2,447	302	170	840	4

Table 31. Motorized Recreational Opportunities on Huron-Manistee National Forests.

ACTIVITY	AVAILABLE
OHV less than 50 inches wide	302 miles designated trail and 4 acres of Bull Gap Hill Climb Area (must have state ORV sticker) prohibited anywhere off designated trail or route (Forest Closure Order No. 5300/04/02/05 signed 6/13/2002 and 2005 Travel Management Rule)
Snowmobile	840 miles designated trails or routes (must have state snowmobile sticker) prohibited anywhere off designated trail or route (Forest Closure Order No. 5300/04/02/05 signed 6/13/2002 and 2005 Travel Management Rule)
Driving for pleasure (Highway legal motorized vehicles)	2447 miles of National Forest System roads (must be highway-legal and have Sec of State license) prohibited anywhere off designated trail or route or roads (Forest Closure Order No. 5300/04/02/05 signed 6/13/2002 and 2005 Travel Management Rule)
Motorcycle (single track)	170 miles designated single-track trail, if street legal 2447 miles of National Forest System roads (must have state sticker and/or highway license) prohibited anywhere off designated trail or route or roads (Forest Closure Order No. 5300/04/02/05 signed 6/13/2002 and 2005 Travel Management Rule)

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